Manual Mulch Layer Instruction Manual

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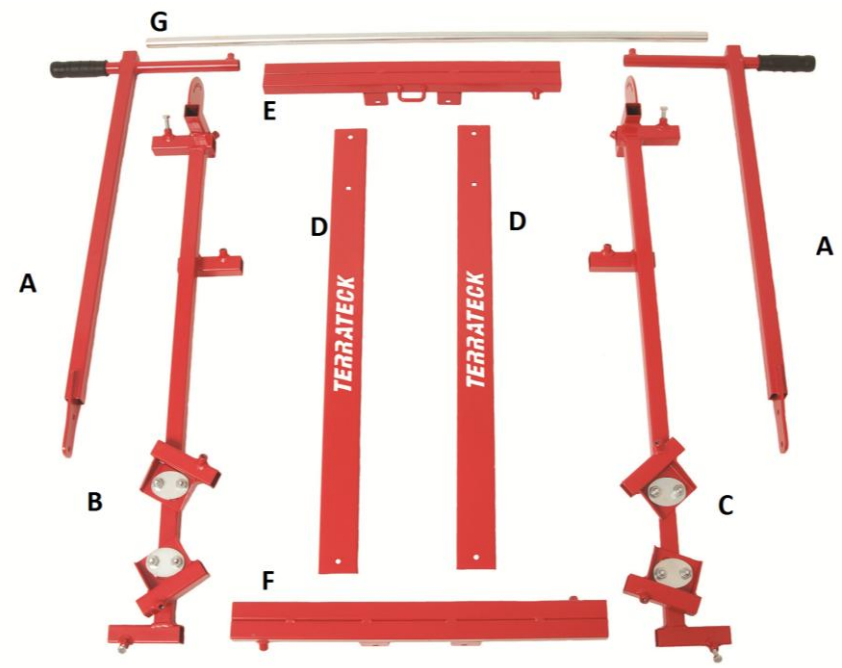
955 Benton Ave., Winslow, ME 04901 • Phone: 1-877-564-6697 • Fax: 1-800-738-6314
Email: service@johnnyseeds.com • Web Site: Johnnyseeds.com

A human-powered mulch layer, the Manual Mulch Layer eliminates the need for large equipment that is both costly and has a large carbon footprint. As the mulch layer is pulled forward by 2 people, small trenches on either side of the bed are dug, the mulch laid, and finally soil is pressed back onto the mulch to secure it. Its size and portability allows it to be used in the field or in a greenhouse or high tunnel.

Parts Included:



A. 2 Handles
B. Right toolbar
C. Left toolbar
D. 2 Central frames
E. Front frame
F. Rear frame
G. Center bar

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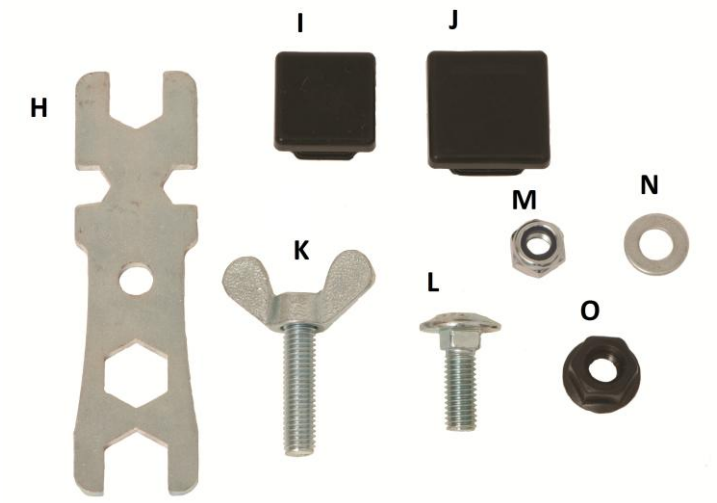
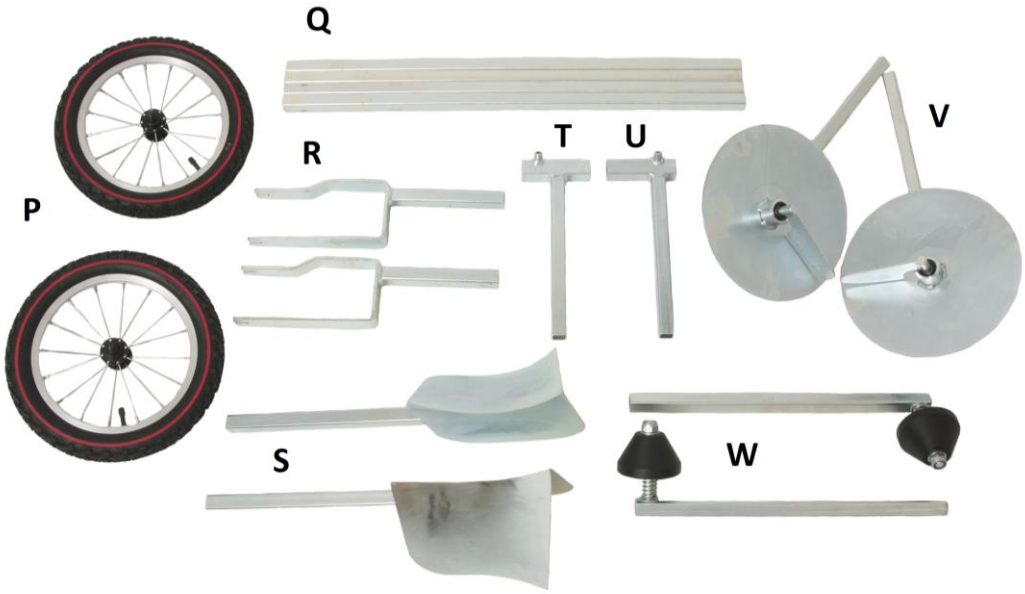


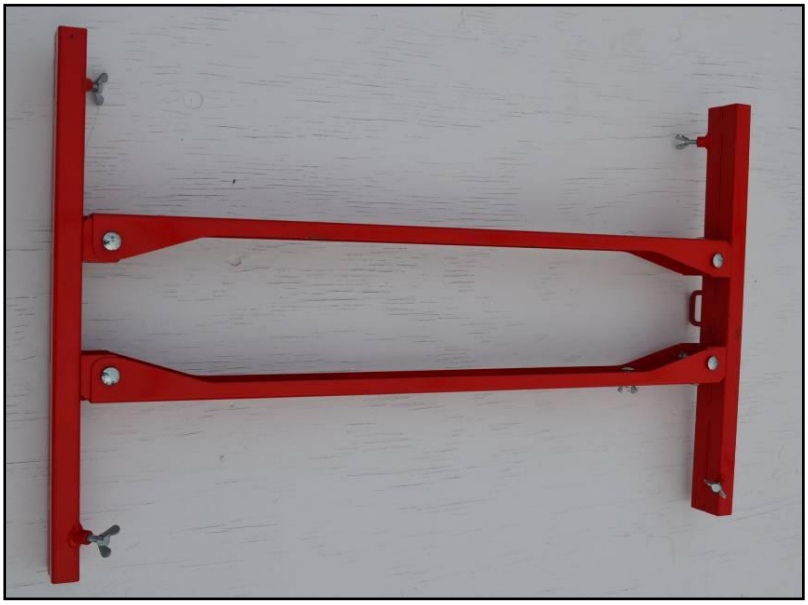
H. Adjustment wrench
I. 10 Small caps
J. 2 Large cap
K. 20 Wing nut bolt
L. 17 Carriage bolts
M. 16 Lock nuts
N. 16 Washers
O. 4 Wheel nuts

Not shown: Wing nut for securing the adjustment wrench to the frame.

P. 2 Press wheels
Q. 4 Extension arms
R. 2 Wheel brackets
S. 2 Front plows
T. 3 Right tool brackets
U. 3 Left tool brackets
V. 2 Discs
W. 2 Spindles



ASSEMBLY:



1) Remove all components from the packaging and lay them out on a clean workspace. Double check the enclosed parts list to ensure you have received all components.

2) Begin by locating the 4 pieces that form the body of the frame: the 2 central frame pieces, the front frame, and rear frame. Assemble as pictured. **Note:** The small U welded to the bottom of the frame marks the front of the mulch layer, and is used to keep the drip tape centered as the mulch layer is pulled. The carriage bolts used to secure this part of the frame may not countersink into the holes provided; be careful not to sheer them by over tightening.

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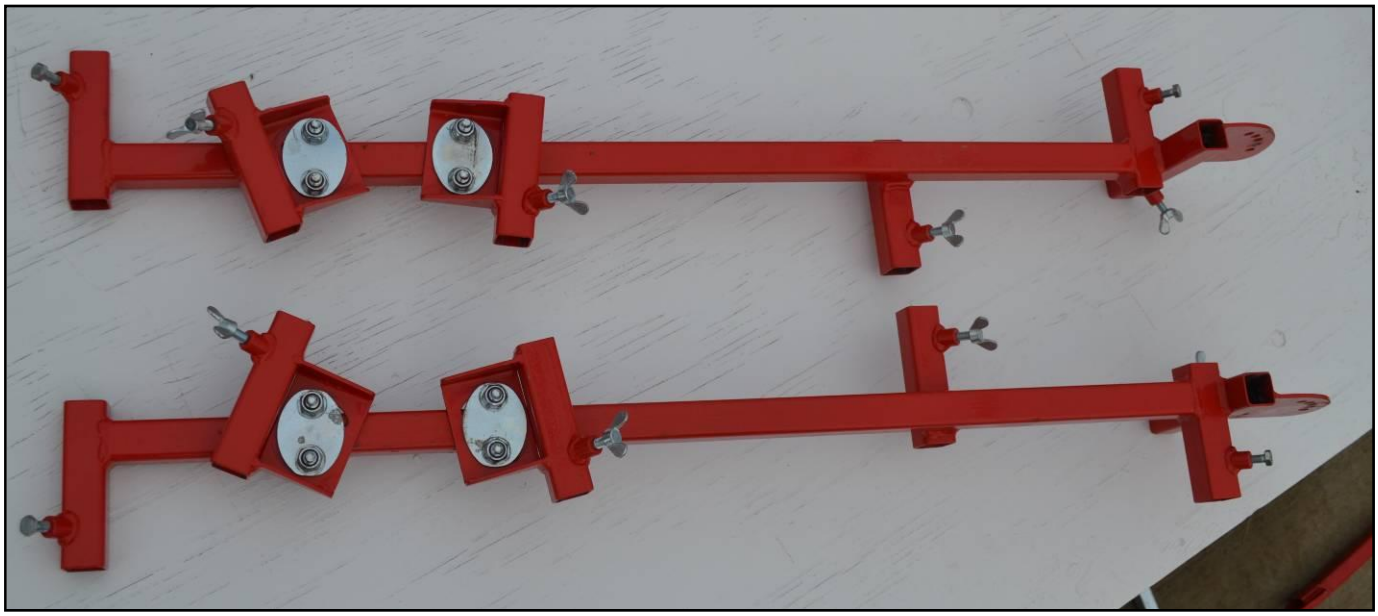
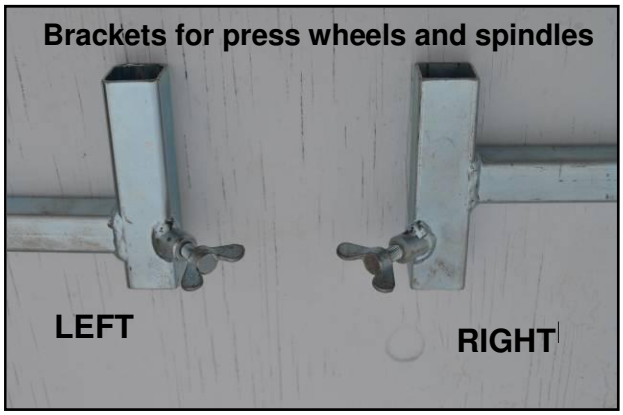
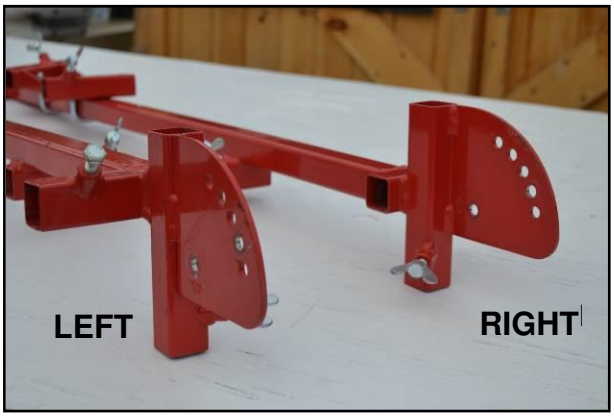
3) Insert the 4 extension arms so that about 12 inches protrude from the base of the frame. This extension is enough to allow for the use of 4- and 5-foot rolls of plastic. Leave the wing nuts finger tight until after you have added the left and right toolbars.

4) Locate the right and left toolbars (shown below). The brackets for the press wheels and spindles should match up pretty closely when set side-by-side. In our trials we noticed that if the lock nuts on these were not tightened sufficiently, they had a tendency to move during use, which could negatively affect the quality of the end-product.



5) Before mounting the toolbars, reference the diagram that was included with your mulch layer. Notice that the right side of the mulch layer has tool arms that look like a T and the left side has arms that look like an L (below left). This is to compensate for the frame extension arms being stacked on top of each other. The toolbars themselves are similarly altered (below).





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6) After mounting the toolbars to the central frame, you are ready to begin adding the toolbar implements. **We recommend that you set up your mulch layer on a hard flat surface; this will help get things set up squarely**.

7) Install the 2 front plows and 2 press wheels. Set the plows so that the distance between them is at least 6 inches less than the width of your mulch, with the press wheels directly behind the plow. Adjust so that the mulch layer sits parallel to the ground. This ensures the press wheels make solid contact with the ground as they tension the mulch.

8) To set up your spindles properly you will need a roll of mulch. Start by centering the roll so that at least 3 inches of the roll extends past the inside edge of the front plows. Adjust the height of the spindles so that the roll of mulch is about 4 inches above the bottom point of the plows (ground level).

9) The discs that close the trench and burry the plastic should be installed, but adjustment must be done in the field as different soil conditions will dictate their final position.

10) Before bolting the handle bars to the frame, install the center bar and drip tape, as you cannot remove the center bar after installation without having to unbolt one handle. Drip tape stops are available and help to keep the drip tape consistently positioned under the plastic. This is useful for crops like tomatoes that will likely be staked, and can reduce the chance of accidental damage to the tape.

11) Two people are required to pull the mulch layer; we found that setting the handles at hip height offered the most ergonomic use. When you are ready to move your mulch layer to the field, you can lower the press wheels as low as they will go and align them with the frame so that they can be used for transport. If there is the need for frequent longer distance transportation, we have special transport wheels available that are more durable than the press wheels that come with the mulch layer.

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FIELD SETUP:

1) The ground that will be covered with mulch must be worked to a depth of at least 4 inches. Deeper tillage will not negatively affect the performance of the mulch layer. Excessive crop debris and large field stones will hinder performance, so some field preparation may be required.

2) Position the mulch layer at the beginning of the first row to be covered and pull it forward until the trench made by the plows lines up with the rear part of the frame.

3) Dig a furrow under the rear part of the frame connecting the 2 trenches. Feed the drip tape through the guide, under the roll of plastic, and secure a few inches past the furrow. The drip tape can be secured by staking it or tying it around a rock.

4) Feed the plastic under the press wheels, keeping it taught, and bury it in the furrow you dug under the rear cross member. You should also bury the sides of the mulch in the trenches created by the plows. If the plastic pulls free when you start pulling the mulch layer, you will need to add more soil around the edges to hold it down.

5) Pull forward a few feet, stop, and make any necessary adjustments to the discs or press wheels. It may take a few tries to get the plastic laying nicely. As long as the plows and press wheels are set to the same height, and the roll of plastic is set about 4 inches above the plows, the only adjustments you should have to make would be the angle of the press wheels and the discs. You can pull the mulch layer by walking frontward or backward.

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