

Tree Transplanter Instructions

Standard Operating Procedures

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Reservation Calendar: <https://wccd.myturn.com/>

This document outlines proper use of the Tree Seedling Transplanter, which will be referred to as the “equipment”. The equipment consists of a coultter, trencher, packing wheel, and an adjustable spacing indicator ranging from 3’ to 8’. The planting trench depth is adjustable with a maximum depth of 12”-14”.



Reservations & Contracts

Anyone using the equipment must sign-off on the equipment contract and general equipment contract. Renters must provide deposit & payment according to the contracts. Reservations for using the equipment is first-come-first-reserved and generally limited to 4 days in the busier planting season. Reservations can be made online, <https://wccd.myturn.com/>, or by phone: 734 302 8713.

Appropriate use

The equipment is designed for planting tree (or other woody plants) seedlings in straight rows in generally open or mowed soil (without heavy litter/brush). It could be used for planting other crops as well, following the same instructions provided. The tub holds about 300 seedlings. It is important to keep roots moist and covered to prevent drying out.

An experienced operator can plant 500 trees an hour, generally with 1 person on the tractor, one person in the planting seat, and one person walking behind to ensure plants are packed well and straight.

Tractor requirements

A minimum 40-60 horsepower tractor with a three-point hitch is required. Category 3 hitch** or greater is recommended, but some Category 2 tractors might work. The lift arm spacing clearance (width between the pins) is 38”. The equipment when on it’s stand, has the lift arm pins at 27” off the ground, so the tractor must be able to connect and lift the equipment from that height on level ground.

**3 point hitch sizing reference: <https://sandcreekfarm.net/3-point-hitches-for-tractors/>

Instructional Resources:

- Blue Water Conservation District “BWCD Tree Planter demo” instructional video:
<https://www.youtube.com/watch?v=C5TtPCLt1t8>

Towing

The equipment must be towed according to local laws and speed limits with a vehicle with the appropriate towing power.

Hitching

The hitch requires a ball tongue with a 2" ball. The ball tongue drop/rise should be such that the tree planter is mostly level, especially not at a steep angle in which any parts are too close to the ground. The renter must provide their own ball tongue.

Taillights

Anyone transporting the tree planter must connect the taillights to their vehicle, and verify the brake lights and turn signals work before transporting. If these taillights are not functioning, the trailer must not be transported until the issue is resolved.

Unloading for use

Unload from the trailer

1. Park the equipment on level ground.
2. Detach the ratchet strap tie-down, leave tied to the frame of the trailer.
3. Use the jack to raise the lift arm and equipment up off the cross braces
4. Take out and reinsert the two yellow stand legs, with flange down, and re-pin.
5. Remove the 2 green crossbeams on the trailer frame, each have one pin at each end. Reinsert the pins in each crossbeam and set aside to avoid losing them.
6. Make any adjustments to the equipment's side depth setting wheel.
7. Using the notched end of the jack pipe on the jack release, rotate (counter-clockwise) slightly to lower the equipment slowly. You'll need to push the equipment to the rear of the trailer so the 3-point pins clear the trailer frame's saddles.
8. The equipment should be stable on the legs and trencher shoe.
9. Unhook the heavy chain on the lift arm from the equipment's top double loop.
10. Pull the trailer away from the equipment slowly.

Attach to the tractor

1. Back the tractor up to the front of the equipment
2. Attached the 3-point hitch securely, using cotter pins.
3. Lift the equipment. Once off the legs, remove the legs and flip them back upside down (flange end up) so they are clear of the equipment and tractor.

Loading the equipment on the trailer

Generally, this is the reverse process of loading it.

Detach from the tractor

1. Reinsert the 2 yellow stand legs flange side down.
2. Lower equipment slowly onto level ground, so it rests on the stand legs and trencher shoe. Clear any pressure from the hydraulics.
3. Detach the 3-point hitch.
4. Pull the tractor away slowly.

Reloading onto the trailer

1. Back up the trailer slowly to be centered around the equipment.

2. Lower the lift arm so the lift arm chain can be reattached through the equipment's top double loop.
3. Tighten the jack release (clockwise) and jack it up to lift the equipment high enough to clear the crossbeams.
4. Replace the crossbeams, they are labeled A-D on their ends and the trailer frame so the pin holes align. Re-pin both crossbeams.
5. Remove and flip the yellow stand legs to be up in the air, clear of the equipment or trailer frame.
6. Restore the equipment's side depth setting wheel to the middle setting.
7. Loosen the jack release (counter-clockwise) slowly to lower the equipment onto the crossbeams while pulling it back to ensure the 3-point pins rest into the trailer frame's saddles.
8. If the equipment is securely resting on the cross beam and the 3-point pins are in their saddles, use the ratchet strap tie down to secure the front to the frame.
9. Jack the equipment slightly so the lift arm chain isn't slack but not lifting the equipment off the cross beams.

Operating the equipment

The trencher shoe runs about 1" below the bottom of the disc blade. The trencher loosens soil on only one side so soil on the undisturbed side remains moist to help prevent tree roots from drying out. Occasionally additional packing of soil around planted trees is needed by someone following behind, especially if the ground is unlevel causing the packing wheel to have inconsistent contact.

Planting depth adjustment

Adjust the planting depth by moving the depth wheel up for deeper depth and down for more shallow depth. This is best done when the equipment is off the ground.

Adjust the spacing indicator

Adjust the spacing indicator as needed.

Operating the equipment

1. Moving the equipment to the planting site with it lifted to full height to avoid contacting the ground on turns or uneven surfaces.
2. Position the tractor so the equipment is aligned with the start of the planting row.
3. Lower the equipment while pulling forward to set the disc and trencher shoe into the ground to the depth of the side depth wheel. Continue at a steady low gear speed.
4. Rear seat planter person will put each seedling into the planting shoe, vertically, and pulling up slightly as packing wheel closes the trench to avoid J-rooting.
 - a. The spacing indicator helps the person planting the seedlings to have consistent spacing.
 - b. Communication is important between the tractor operator and person seated on the planter in case of any issues.
5. A third person is useful to follow safely behind and check that seedlings are straight and packed with good root to soil contact.

Equipment Damage & Cleaning check list:

This checklist is for renters and staff to review the equipment after each rental. Cleaning or damage fees will be charged as necessary.

- Check the equipment over to ensure it is clear of any debris or soil. If it is heavily soiled, please use a power-washer to rinse clean.
- Check the equipment that all pins are in place with their cotter pins on the crossbeams
- Check that they disc and trencher shoe aren't bent or damaged

End of Season Maintenance

This list is for staff to conduct at the end of each planting season to keep the equipment in good working condition.

- Regrease/service the lift jack ?
- Check condition of tires, including the depth tire, for wear and replace if needed.
 - Regrease trailer tire bearings and depth tire if needed.
- Replace any parts that show significant wear or damage, including cotter pins, the seat, etc.

Document update log

- 4/6/2023 – adding notes on tractor hitch Category / spacing required.
- 3/21/2023 – Drafted.