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The Tillie is a product designed from the ground up to help serve the growing number of small-scale farmers. The battery-powered operation benefits not only the user, who never has to worry if their equipment will start, but also the environment, as the Tillie releases no fumes. With a powerful hub motor and superior maneuverability, the possible applications range from tight-quarter tilling and cultivating, to creating beds, hilling crops, and more.

The Tillie comes in two models: the Tillie A and the Tillie V2. Both are proficient at any of the uses listed above, but have slight differences.

The Tillie A has a fixed tiller head while the Tillie V2 is articulating and is powered by a slightly more powerful battery.



The main benefit of the Tillie V2, with the articulating head, is the ability to install the V2 Toolbar Kit and use the 6-inch gauge wheels attachment (see: Cultivating Pathways section). The articulating head can also make some tasks more ergonomic, especially when cultivating in-row sections from the pathway; you will be able to walk facing forward, rather than your body angled toward the bed. It can also help when cultivating close to side walls in greenhouses or hilling crops that have grown too tall to reach over. If you do not plan on purchasing the V2 Toolbar Kit and the gauge wheels, the Tillie A would be your best choice.

Follow the included instructions to properly assemble either Tillie model prior to use, and take note of all safety warnings.

## Tilling:

As its name suggests, the Tillie's main function is use as a tiller. It works very well in wide-open areas, but is especially useful in greenhouses and tunnels or other tight spaces where larger, gas-powered tillers might not fit. The best technique for tilling is to sweep the tiller head back and forth in front of you while slowly walking forward. For all of the Tillie's functions, the speed and power depends on how far you engage the throttle, how fast you move, and how much resistance you provide.



## Forming Beds:



The Tillie is very useful for making raised beds. We found that by outlining the paths with string suspended about a foot off the soil, we could use them as a guide to create relatively straight, uniform raised beds. It may take several passes on either side before enough soil has been removed from the pathways to form the beds. How quickly the beds form depends on your soil conditions — heavier soils take longer. Once you have roughed out the paths, use a bed preparation rake to smooth the bed surface.



## In-Row Cultivation (Hilling):

The Tillie also works well when used as a hiller, as shown to the right. Standing on the opposite side of the row being hilled, slowly walk with the Tillie ahead of you at roughly a 45° angle. Adjust your speed so that the desired amount of soil is being moved. When you reach the end, turn around and make your way back, hilling the other side of the bed. The weeds growing in the soil that is being moved to create the hill will be uprooted, while at the same time small weeds growing in row will be smothered.

## Cultivating Pathways:



Weeding paths can be difficult, especially because the ground is usually compacted and weeds are difficult to pull. The Tillie expedites the process of cultivating pathways, and with the 6-inch gauge wheel optional attachment the task is made almost enjoyable. The 6-inch gauge wheels (seen above, and only compatible with the Tillie V2) help control the depth of the cultivating tines, which not only optimizes battery life and reduces fatigue of the user, but can also help to reduce the amount of weed seed brought to the surface by limiting soil penetration. The Tillie is also useful to weed between rows, in the same fashion as cultivating paths. The gauge wheels are also handy for moving the Tillie around your farm or garden. The V2 Toolbar Kit is required for mounting the 6-inch gauge wheels, and is only compatible with the Tillie V2.



## Safety and Troubleshooting

- If you have rocky soil, as we do at the Johnny's Research Farm in Maine, stones may become lodged between the tilling blades and the fender. The best way to clear the obstruction is to turn the Tillie off, step on one of the blades, and pull the handles up sharply. Once you get the hang of it, clearing the blades of obstructions is a fluid process. Larger rocks pose little threat to the Tillie, as it will just bounce off them. However, this may cause the Tillie to move in a direction you do not intend it to. **Under no circumstances should you use your hands to remove rocks while the Tillie is on.**
- The tines on the tilling head are sharp, and will likely become sharper as they wear down. **Wear gloves when handling the tine head and always make sure the Tillie is off before performing maintenance.**
- Closed-toed footwear should be worn at all times when operating the Tillie.
- Always hold the Tillie with both hands and ensure you have stable footing before engaging the throttle.
- If the motor turns but the tine head slips, you may need to tighten the clamping nut; shown right.
- When charging, the indicator light on the charger will glow red. When the battery is fully charged, a second light will glow green.
- Ensure the key switch is in the off position before connecting the battery pack to power cord.
- Always switch the key to the off position and disconnect the battery pack power cord for storage.
- Lithium-ion batteries can hold a charge for many months, and it is best to store them with a full charge. Occasionally, when a lithium-ion battery with a very low charge is stored for a long period of time (many months), its voltage slowly drops below the level at which the built-in safety mechanism allows it to be charged again.
- If the battery is going to be stored for several months it's advisable to recharge it periodically.



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