Cardboard for Weed Control

Cardboard for Weed Control in Pathways and Plots

A Hillsboro Community Garden Program Guidance Document

Organic Weed Control: Using Cardboard

Organic Weed Control is Easy with Carboard!

Hillsboro's community gardens are strictly organic. No herbicides or pesticides not approved for use in organic gardens are permitted.

In our organic gardens, we can effectively control nasty infestations of nuisance weeds such as crab grass, field thistle, and bindweed in large areas and pathways using cardboard.

Cardboard introduces no hazardous poisons or chemicals to the environment and adds organic matter to soil while very successfully starving out nuisance plant roots.

The Worst Weeds

The most invasive weeds in our gardens are:

- Canada Thistle (Cursed Thistle, Field Thistle, Lettuce From Hell)
  Cirsium arvense, Asteraceae
- Field Bindweed
  Convolvulus arvensis, Convolvulaceae
- Quackgrass
  Elymus repens, Poaceae

Left unchecked, these weeds easily overrun large areas by means of rhizomes and/or aggressive underground root networks.

How Field Thistle Spreads

Field Thistle *(Cirsium arvense),* a non-native, has an extensive underground structure which consists of four types:

1. long, thick, horizontal roots,
2. long, thick, vertical roots,
3. short, fine shoots, and
4. vertical, underground stems.

- Though asserted in some literature, creeping thistle does not form rhizomes.
- Root buds form adventitiously on the thickened roots of creeping thistle, and give rise to new shoots.
- Shoots can also arise from the lateral buds on the underground portion of regular shoots, particularly if the shoots are cut off through mowing or when stem segments are buried.

Reference: https://en.wikipedia.org/wiki/Cirsium_arvense

How Bind Weed Spreads

Bindweed *(Convolvulus arvensis),* a native of Eurasia, is an international nuisance weed. It reproduces vegetatively from roots, rhizomes, and stem fragments, and also by seeds that can lie dormant in the soil for up to 50 years or more.

Its dense root-rhizome system spreads widely underground, and can reach a depth of more than nine feet.

It is spread by animals, drainage water, and machinery, and is often a contaminant of crop seed.

References:
https://en.wikipedia.org/wiki/Convolvulus_arvensis
https://www.nwcb.wa.gov/weeds/field-bindweed

How Quack Grass Spreads

Quackgrass (*Elymus repens)* is a non-native, invasive perennial weed grass which spreads both from seeds and underground rhizomes.

Quackgrass looks similar to another troublesome grass, crabgrass, but is far more difficult to control because of the extensive underground rhizome system which creates new plants prolifically as it spreads.

Ref: https://www.doityourself.com/stry/quack-grass-vs-crabgrass

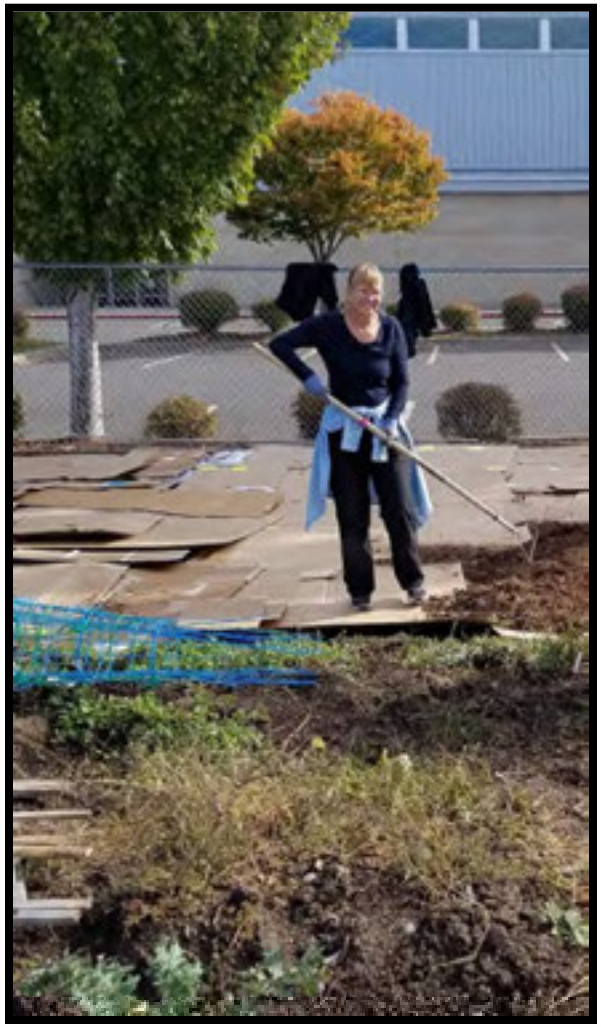
How Cardboard Controls Weeds - 1

The best way to eradicate these weeds is to starve out their extensive underground root networks. This means getting the plants to use up all the energy in the underground networks without being able to replenish themselves.

Remember – plants feed themselves through photosynthesis. If the plant cannot get to sunlight and start feeding before it uses up the stored energy in its underground network, it will die.

We need to keep the photosynthesizing parts (leaves and stems) from getting to the surface and into the sun.

How Cardboard Controls Weeds - 2



Covering the ground with several layers of cardboard and then with woodchips or other heavy mulching material cuts off sunlight and creates a thick layer that weeds have to get through, using extra energy from the underground network, in order to reach the sun.

For very heavy infestations, it can take several renewals of cardboard layers, often over several seasons, to fully eradicate a problem, but each season you can see a substantial decrease in the weed population.

Cardboarding – Some Notes

In our community gardens, we use woodchips in our pathways. When fresh, the woodchips are excellent weed control as bacteria, feeding on the chips, draw Nitrogen out of the soil as part of their metabolic processes. The lack of N discourages weeds.

However, the woodchips eventually break down into a very fine, high-quality compost. Even with a fresh top layer of chips, this underlayer is so delicious for weeds, that they are no longer deterred much by the N drop in the top chip layer.

In our weed control, removing this nourishing underlayer is really important in order to get the best result from the cardboarding process.

Getting Ready to Cardboard!

- Use brown cardboard, mat finish, only. This is the type most often used for packing boxes.
- Collect a substantial amount of cardboard together before starting.

Good Sources of Cardboard Are:

- Brookwood Library cardboard dumpster
- Sonrise Church dumpster
- Mobile Technologies Inc., across Campus Way from Sonrise Garden
- Collect cardboard at home and bring to work parties.

Prep Your Cardboard!

Prepping Your Cardboard Saves Time!

- Most cardboard comes with lots of plastic tape, plastic label pockets, and other non-degradable stuff.
- It is important to rip all this off before you use it.
- If you don't, it simply stays in place and works itself to the surface, so you will be picking up icky plastic tape out of your pathway or plot for ages to come.

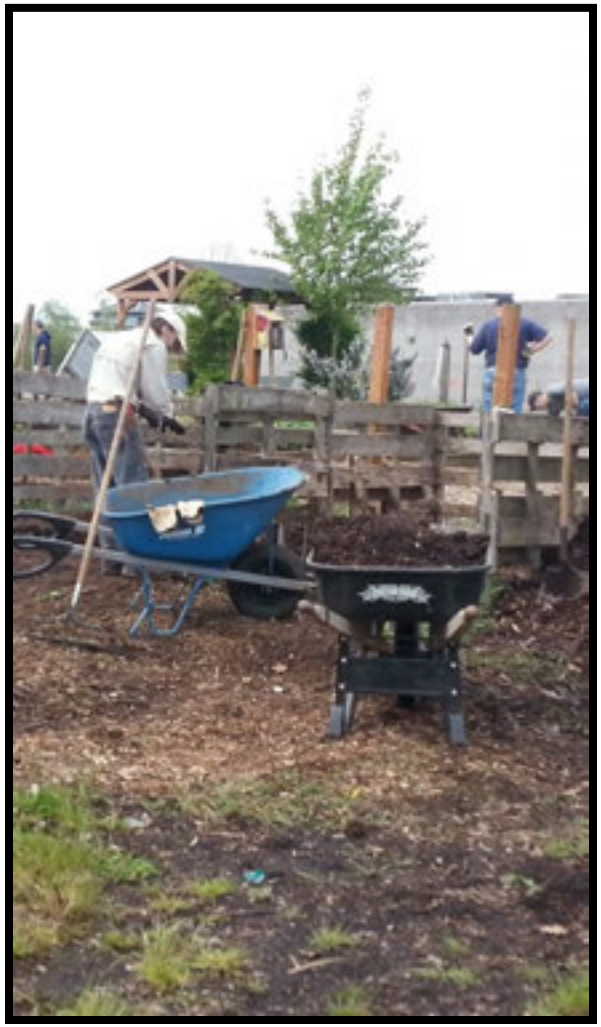
Getting started…..

- If you have a layer of new, chucky woodchips on the pathway surface, scrape it off and set aside in a pile.
- Uncover the layer that is fine compost and feeding the surface weeds.
- It is important to dig out this composted layer about three inches, often this layer has more clay. It is not necessary to dig into the clay.

Digging Out the Composted Matter

Digging Out the Composted Matter

Where the High Quality Underlayer Goes



Don’t Throw Away the Good Stuff!

- The composted layer we dig out of our pathways is very rich and an excellent amendment for our compost piles.
- Take all the composted matter you dig out to the large composters and layer into the piles.

Composting Weed Waste

Our community garden composters are not managed to the degree that the piles are guaranteed to build up enough heat to kill plant seeds. Vegetables seeds as well as seeds from other plants may well persist and take the opportunity to sprout when the compost is spread. Using the compost is by personal choice.

The composted layer we remove from our pathways will necessarily have vegetative plant parts from nuisance weeds as well as some of the general seed load of the outdoor soil bank.

One of our objectives in the management of our community gardens is to develop sustainable practices, including the cradle-to-grave management of all our waste products. This necessarily encompasses the management of nuisance weed waste.

For more information on how we manage our community composting project, including information on nuisance weed control, please see our Guidance Document "Composting in the Community Garden."

Cardboarding Continues

- Once the under layer has been removed, put down two to four layers of cardboard. More is better!
- Be sure to overlap and leave no soil bare. This is critical and often missed.
- Fold the carboard up a little along the sides of the pathway against the garden box railings to discourage weeds creeping up the sides.
- Once the cardboard is down, cover it with a thick layer of fresh woodchips.

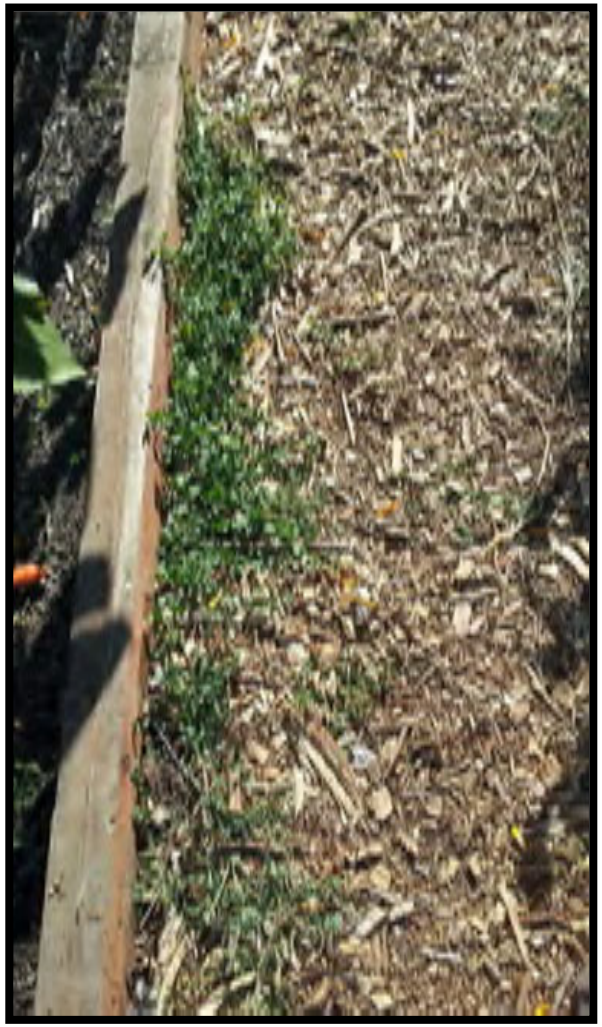
Cardboarding – Getting Down the Layers

Cardboarding – Getting Down the Layers

Cardboarding – Folding Up the Sides

Cardboarding – Adding Fresh Woodchips

You Must Weed Regularly!



You must weed regularly after treatment or your effort is wasted!

- The cardboard's function is to starve the weeds by denying them sunlight.
- The woodchips both rob the soil of Nitrogen and cut out light
- Even so, weeds will continually try to work their way through to sun.
- Weeds exploit any gaps or spaces where cardboard was not overlapped or folded up along edges and work more quickly through those areas than the continuous cover.
- As soon as a green shoot finds sunlight, it begins to feed the roots.

You Must Weed Regularly!

- Remove any new weed shoots as soon as they appear.
- As long as you catch weeds early, they are fairly easy to remove, but if you leave them to begin feeding, spread rapidly, weeding is much more difficult, and you lose any benefit of your effort.

The accompanying photos show pathways which were not tended after treatment.

- Tended pathways stay well under control.

Cardboarding in Large Areas

We can use this same procedure very successfully to control weeds in large areas other than our pathways.

Simply follow all the same steps outlined for the pathways.

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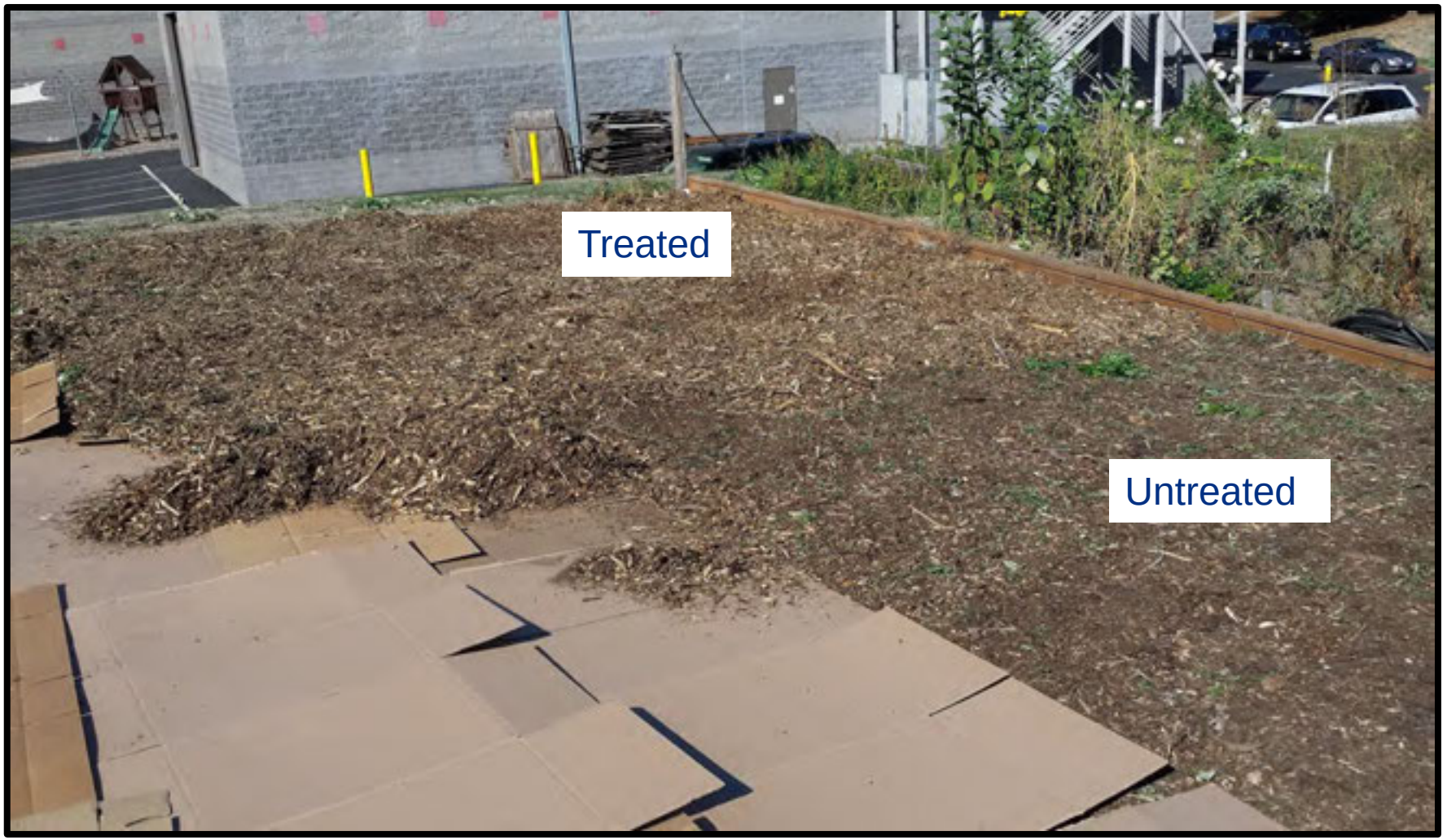


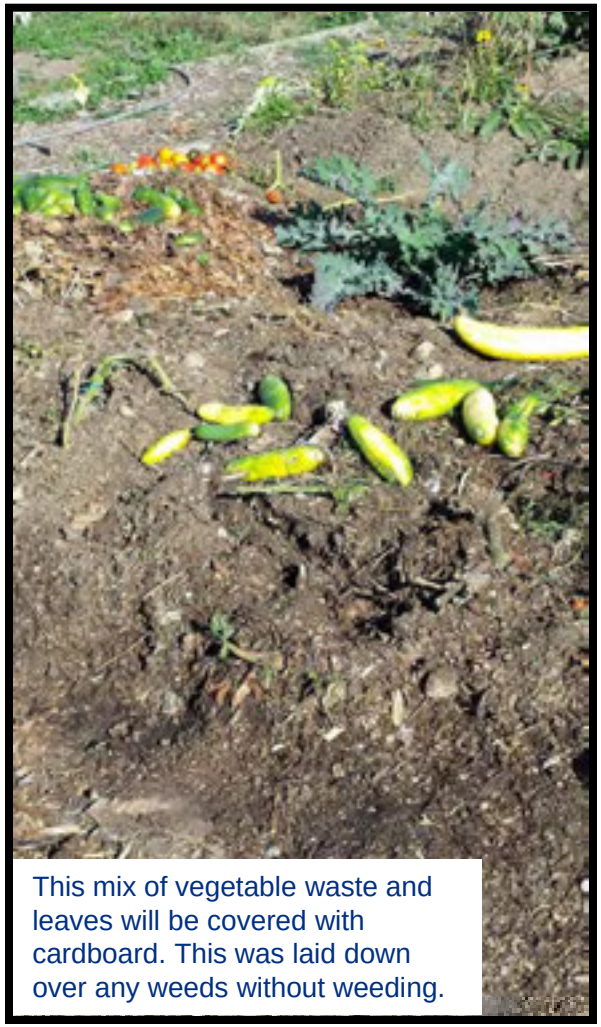
Cardboard Weed Control in Plots

Like our pathways, our community garden plots can get overrun with weeds. This most often happens when plots are abandoned mid-season, or gardeners drop out without notifying the program and plots are left untended. Weeds invade rapidly.

Cardboard is as effective in plots as in pathways, and offers the benefit of enriching the soil with organic matter as well as discouraging weeds.

The process is similar, but we do not remove soil prior to doing the carboard mulching and we can use leaves or vegetative waste as a soil enhancement.

Cardboard Weed Control in Plots



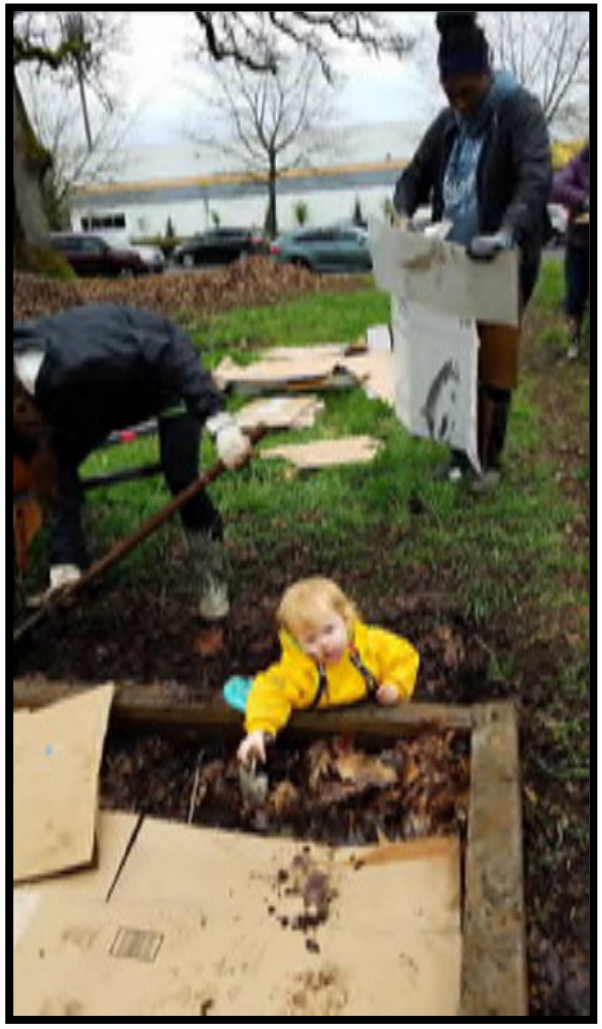
This mix of vegetable waste and leaves will be covered with cardboard. This was laid down over any weeds without weeding.

1. Thoroughly weed out any instances of field thistles, quack grass, or bindweed in the plot.
2. You can leave all other plant growth in place for mulch, if you are comfortable with this.

Be careful to shake the soil out of weed roots as much as possible.

3. Put down a layer of mulch. Two good options are leaves and/or vegetable waste. This will decompose and add organic matter to your soil as well as help discourage the nuisance weeds.

Cardboard Weed Control in Plots



Continued….

4. Follow the procedure outlined in the first section for the cardboard.
5. To finish, for the best weed control, use woodchips as with the pathways.

Note: Woodchips break down very slowly. You will need to rake the undecomposed portion off in spring before planting.

Leaves are a good solution for topping, but you will need a very thick layer. Using leaves that are fairly ground up are better than intact leaves. Straw is another option.

Cardboard Weed Control in Plots

Cardboard in Plot Pathways

- Having permanent pathways in your plot helps a lot with maintenance and keeps you off your beds, so your soil doesn't get compacted.
- You can use cardboard and woodchips on your plot pathways in exactly the same way we do in the public pathways.
- You can avoid weed infestations quite effectively and reduce your weeding load, since you will not need to weed your pathways much.

Cardboard Weed Control in Plot Pathways

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Happy Gardening!