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81. Try a long handled hoe for weeding nursery crops. Newenhouse, A., Miquelon, M., and Chapman, L. University of Wisconsin, Healthy Farmers, Healthy Profits Project, Work Efficiency Tip Sheet. 2 p. 2007.

Many of the hoes commonly used for weeding can strain your back, neck, shoulders, and arms because they force you to adopt a stooped position. Consider a long handled hoe with a sharp blade instead of what you currently use. Long handled hoes encourage you to stand up straight while you work and some keep your wrists and neck in a more neutral position. The unique design of these hoes can also help you save time and effort.



Bent over, chopping motion with the traditional hoe.

How do they work? Hoes are designed either for slicing weeds at or just below ground level or for chopping weeds and cultivating or disturbing the soil surface. Blades on chopping hoes, such as a planter hoe or nursery hoe, are set at a sharp angle to the ground and are designed to move more soil than slicing hoes. While many types of slicing hoes are available (such as the stirrup, scuffle, half-moon and circle hoes), two in particular, the long-handled diamond hoe and the collinear hoe, allow you to stand straight with a neutral wrist position.



Left to right; the stirrup, collinear and long handled diamond hoe. The long handled diamond hoe has a slightly angled "T" handle which helps provide control and prevent wrist strain.



More upright posture, push/pull motion with the long handled diamond hoe

The long handled diamond hoe has a 2" x 8" diamond-shaped blade, sharpened on all 4 edges. The handle is 6' long and ends in a modified "T" shape. While standing upright, you push the hoe with your hand loosely gripping the "T" and pull it back again in a push-pull motion similar to running a household vacuum. With your other hand along the handle, you can gently guide the hoe.

The collinear hoe has a 1 1/4" wide, 4" - 7" long rectangular blade angled so the blade is parallel to the ground while you stand upright. Grip the collinear hoe with your thumbs up, and make short, sweeping motions beside you near your feet. The motions are similar to using a broom or leaf rake. Collinear hoe handles come in 56"-68" lengths. Choose a handle long enough to let you hoe without stooping.

Benefits:

Less fatigue and discomfort.

To prevent fatigue and soreness, it helps to use a slicing hoe instead of a chopping hoe because you skim it along the ground or slightly beneath the surface instead of repeatedly lifting the hoe and moving a lot of soil. If the handle is long enough on any slicing hoe, you can work with your back straight. Using a hoe with a regular length handle (typically 54-57") forces you to bend to reach the ground, which strains your back, shoulders, arms, and neck. With the long handled diamond hoe or the collinear hoe, the handle length and blade position work together to let you hoe with your back straight. In our trials, we took repeated measurements of spine angle from an hour of work. On average, when using the long handled diamond hoe the worker was more upright, with eight degrees of forward lean from verti-

WORK EFFICIENCY



Tip Sheet

A series of tip sheets on labor efficiency for nursery field work.

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cal, as compared to fifteen degrees of forward lean using the stirrup hoe.

With the diamond hoe, you also have less neck strain because you face forward as you work instead of sideways. Holding the slightly angled “T” handle on the end of the long handled diamond hoe, or grasping the collinear hoe in a sweeping position with your thumbs upwards puts your wrist in line with your arm in a neutral position that isn’t bent or twisted. This helps prevent wrist strain.

Requires less effort. The long handled diamond hoe cuts on both the forward or pushing and backward or pulling stroke, and is more efficient than chopping or weeding only on the pulling stroke.

It takes less effort to slice weeds with a sharp edge than with a dull one. Both the diamond and the collinear hoe are made of high carbon steel and can be kept razor sharp. The long-handled diamond hoe’s forged blade starts out sharper and is more durable than a stamped blade. To keep a hoe sharp, use a mill file or bench grinder and file across the width of the blade with each downward stroke. Maintain the manufacturer’s bevel. You can buy replacement blades for a collinear hoe.

Lets you change positions.

Each time you change your work position, you alleviate muscle stress and prevent pain. You can alternate using the collinear hoe from your right side to your left side. With the long handle you can alternate hoeing in front of you with reaching to hoe an adjoining row depending on the crop size and spacing.

Fast and precise. The hoe you choose depends on personal preference, soil type and moisture level, weed height and crop growth. With 4 cutting edges and 2 sharp points on the diamond hoe, you can quickly remove weeds very close to your crop. Although the collinear hoe has only one sharp edge, it is also fast and precise to use since you make very short shallow strokes while standing close to your crop. Any weeding hoe that is designed to skim below the soil surface and slice weeds will be faster to use

than a chopping hoe designed to cultivate soil. It may take a while to get used to the long handled diamond hoe because of the upright posture, precise cutting edges and “far away” blade, however you can learn to weed more quickly with this hoe than with others. In our field trials, removing small (2-4 inch) weeds from between salsify rows was 21% faster with a long handled diamond hoe than with a stirrup hoe.

Affordable. The collinear hoe costs \$28-\$36, and the long handled diamond hoe costs \$35-\$40. While initially more costly than many other hoes, they pay for themselves by saving time and preventing injury and soreness.

How can I get one? The long handled diamond hoe we describe here was originally designed for tulip farmers, and is made by De Van Koek, a Dutch company. Both the diamond hoe and the collinear hoe are available from farm and garden supply dealers such as:

- Glacier Valley Enterprises (diamond, collinear)
S. 2907 County Hwy A
Baraboo, WI 53913
800-236-6670
Glacierv.com
- Ag Resource Inc. (diamond)
35268 State Hwy 34
Detroit Lakes, MN 56501
800-288-6650 or 218-847-9351
- Johnny’s Selected Seeds (collinear)
955 Benton Ave.
Winslow, ME 04901
877-564-6697
www.johnnyseeds.com
- Gardener’s Supply Company (diamond)
128 Intervale Rd.
Burlington, VT 05401
888-833-1412
www.gardeners.com

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This material was developed by the Healthy Farmers, Healthy Profits Project, whose goal is to find and share work efficiency tips that maintain farmers’ health and safety and also increase profits. For more information, call (608) 262-1054 or visit our website at <http://bse.wisc.edu/hfhp/>

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