

THE BACKYARD food garden brings ready images of labor converted to greens, fruits, beans and corn—but why not small grains? There was a time when almost every farm and homestead out there made some provision for growing grains—and not only the larger among the grains like corn and beans, but those small grains that arguably continue to feed the world and that most folks in North America consume in large quantities every day.

Is it because these staples have drifted into the realm of the highly-processed and therefore not for home growing?

Whatever the reason, it's true that dry beans, flint, flour and dent corns, and a whole host of small grains are not among the top tier of food-garden favorites in North America. When was the last time you were involved in a conversation about the awesome flavor in this variety of corn, ground into meal, or that variety of wheat, whose flour was responsible for that oh-so-delicious homemade pasta?

No doubt one practical reason for small grains falling out of favor is that in most instances there is quite a bit of labor involved with getting the crop out of the field and sufficiently processed to be able to make flour. And the making of flour requires milling—a process that we've been raised to believe requires vast stone or metal wheels powered by water or electricity that crush the grains, thus liberating that white starchy stuff we call flour. And then

it takes even more machinery to separate the starchy stuff from the protein and the fiber—germ and bran. And that's where we've gone wrong. Somehow we became convinced that really the only flours worth eating were white and starchy.

The homestead is a perfect place to devote a little energy to the production of small grains. All it takes is a bit of fertility, some effort on your part and minor cooperation on the part of Mother Nature. And come harvest time, if you don't have time to process the grain from the get go, it will store quite nicely—so long as you keep insects, rodents and birds at bay. Let's take a look at what's involved to make it happen.

CONSIDER YOUR NEEDS

Before embarking on a full-scale small-grains experiment, you might consider growing one to three small patches of your favorite grains, or those you are just curious about as a means to dip your toes in the water. While those patches are growing, you can do some calculations to get a feel for how many pounds of whole wheat flour you consume in a year and move from there to a consideration of what fraction or multiple of an acre it would take, under average conditions, to produce.

For example, if winter wheat is among the crops you want to grow, consider that you might be able to achieve a yield in the realm of 40 bushels per acre, which roughly approximates a bushel per 1000

square feet. So if you can devote a patch that's 20x50 feet, you should come close to making a bushel of threshed grain for your efforts. A bushel of wheat should weigh in the vicinity of 60 pounds. That's a lot of flour, when you think about it.

PUTTING IN THE CROP

Once you've decided on a wheat variety, you'll want to prepare your ground. You can do the initial prep with hogs, but you'll want to spend some time with a tiller, wheel cultivator, rake, etc. to get a fairly uniform seed bed.

With winter wheat, you'll want to check with local growers or the extension service (or online) to discover if the Hessian fly is an issue in your area and what the earliest planting date is to avoid Hessian fly infestation. If you are in doubt, err on the later side for planting—but with winter wheat you'll need to give the crop sufficient time to germinate, sprout and grow a bit before snow cover or freezing weather shuts it down.

If you happened to have your peas, beans, or a cover crop of clover in this patch prior to the wheat you won't have to worry too much about fertility. If you think fertility might be depleted, feel free to work some composted manure into the soil as you prepare the seedbed.

It's really not difficult to hand broadcast wheat seed in a patch of this size. You'll need 3 to 4 pounds of seed for the 40x50 foot patch (a rate of about 2 bushels per

SMALL GRAINS

BIG BENEFIT

BY OSCAR H. WILL III



Photo: Karen K. Will

ABOVE: An option for avoiding weeds is to plant winter wheat in single rows and cultivate, or in multiple rows or thin strips that you can cultivate between.

acre). As your patch grows larger, you might graduate to a broadcast seeder—either hand cranked or a larger push or tow-behind model. If you have several acres to plant, it might be prudent to secure a small, solid-stand seeder or drill—you'll save on seed and you'll be able to tell where you have and haven't seeded.

Once the seed is on the ground, go ahead and rake it in and then pack it. Again, if your scale is too large for the rake, fashion a drag—spike-tooth harrow, spring-tooth harrow, old bed spring, small snag of tree branches, you name it—and pull it over the patch to mix the seed into the seedbed. Plenty of folks leave it at this, but you can hedge your germination bet with a little pressure.

For the best germination, press the soil into good contact with the seed. If your patch is a small one, strap some 2x6 material to your feet and take a stroll. If you have access to an old push-type lawn roller, use it. If you have any easy-to-handle drum-sized cylinder around your place (plastic and metal barrels should be weighted) you can roll them back and forth to firm up the

seedbed. Some folks drive a lawn tractor up and down the patch using a slightly different path with each pass. Others are lucky enough to have sufficient cultipacker wheels or drill-press wheels in their scrap piles to build small, easy to push or pull (by hand or with a lawn tractor) rollers that will get the job done. Crazy as all of this sounds, it will make a significant difference—and you can prove it to yourself by packing one half of your patch, observing and taking notes.

Once the soil is packed, all you really need to do is sit back, relax and wait. If you are in an area that requires irrigation for any green life to thrive, you may need to sprinkle your wheat patch to get things moving.

WHAT ABOUT WEEDS?

Since folks generally sow wheat in a solid stand instead of in rows, cultivating really isn't an option. And you want to avoid routinely walking on the crop to pull weeds by hand—which is neither fun nor efficient in this scenario. The best weed control you can offer wheat and

other small grains planted in solid stands is good soil preparation in the first place, assuming you aren't into using poisonous herbicides. If the previous crop was a row crop and you kept it well cultivated, you're off to a good start. If you've routinely used hogs to till and devour weed seedlings, you'll likely be fine.

All you really need is for the wheat to get ahead of the weeds. Winter wheat has the advantage of germinating at a time when plenty of other annual seeds await spring. Experiment a bit with rotations, rotation sequence and cover crops to find a good working pattern for avoiding weeds in your wheat patch.

Another option for avoiding weeds is to plant your winter wheat in single rows and cultivate, or in multiple rows or thin strips that you can cultivate between. In this case you might plant 6 rows of wheat spaced 3-4 inches apart and then leave a 2-foot path that you can protect with a heavy hay or straw mulch. This model will allow you to monitor the wheat and reach in from the outside to get after any major weed infestations.

If you get way behind on the weeds, you can also mow them with your mower set on its highest setting to nip the weeds before they flower. Most of them will perish when the frosts hit and the wheat will have a head start in the spring. With a little luck, your efforts will pay off with relatively thick and uniform stands of wheat by the time the weeds are waking up—and they'll have a tough time of it under a canopy poised to turn into amber waves in just a few months.

Finally, if you do have difficulty with weeds in your small grains patches, consider using a densely growing clover in your rotation as follows. First, go ahead and plant your wheat as you would normally, taking care not to stir the soil too deeply thus exposing a new crop of weed seeds to the light of day. With a few good freezes over the winter your winter wheat should come on pretty strong in the spring, outstripping the worst of the early weeds. Once the wheat is growing, but before the soil becomes tight and compacted from rains followed by dry weather, broadcast a low-growing clover (white Dutch comes to mind) over the wheat patch and water it in, or let Mother Nature do it for you. The clover will germinate and begin to grow under the "protection" of the wheat. By the time you harvest the wheat, the clover will be ready to take off, choking out any later-



season weeds and eventually adding considerable nitrogen back to the soil. This method will require some experimentation and adjusting, but it often works. Be sure to follow the clover with something other than wheat (corn works); wheat can be planted again after the alternate crop has been harvested.

HARVEST TIME

Winter wheat generally ripens in early to late summer, depending on your elevation and latitude. The farther north you are the later it will be. You'll know it's maturing as the verdant green turns silvery and eventually to various shades of amber,

yellow, straw or brown—there is plenty of variation in the color of mature wheat. At some point, you may notice that the seed stalks curve until the heads are aimed more or less downward. Pull a head or two, and rub it between your hands. If it is anywhere near ready, you should wind up with a small handful of loose wheat berries along with some chaff. Select a few berries and chew on them—crunchy means the wheat is ripe. This stage is ideal for combining wheat, but you needn't worry so much when you cut and thresh your wheat by hand. If it's not crunchy, and ideally it isn't, you can still harvest it as long as you give the wheat a chance to

dry to the crunchy state before storing it.

When your wheat has turned mostly to amber (or red or whatever color your variety turns) and the berries are a bit on the soft or chewy side, then you should feel free to begin your harvest. Use a scythe or garden sickle to harvest your wheat. If you happen to have a scythe with a cradle, so much the better. The cradle will collect the cut wheat stalks and keep them oriented head to tail for easy bundling.

In any case, once you've cut sufficient stalks to make several bundles (perhaps a double handful of stalks at least 6" in diameter measured at the stems), you want to gather it up keeping the heads facing



LEFT: When it's time to separate the wheat from the chaff, a simple threshing floor can be set up using a cotton drop cloth on a hard wooden or concrete floor.

the threshed wheat to dry before storing. Spread the berries on a tarp placed on the ground or a table to facilitate drying.

GETTING AT THE GOOD STUFF

Finally you're ready to separate the wheat from the chaff—quite literally. Humans carried out this operation for millennia before the advent of threshing machines, much less the modern combine, which harvests and threshes (thus "combination" harvester and thresher) in a single pass. Luckily, ripe wheat shatters relatively easily so all you need to do is rig up a threshing floor of some kind and have at it. The threshing floor can be as simple as a cotton drop cloth, light canvas tarp or some other clean, aesthetically pleasing piece of material spread on a hard wooden or concrete floor. In the simplest methods, you can toss a few bundles into the center of the cloth, fold it in half or quarters and simply stomp on the enclosed bundles. Or you can otherwise crush the wheat using relatively light force lest you crack the grain.

Some folks forego the folding and stomping and beat at the berry ends of the bundles with flails or sticks. Some use long-handled flails and work the bundles as they lay on the threshing floor (keeping the works on the cloth is helpful for collecting the grain), while others hold the bundles across their knees and whack at the heads with a short-handled flail or stick. Both methods may require a bit of vigor and rubbing to remove the seed completely from its hull, but in time you'll discover a method that works for you. If you happen to have a fairly powerful string trimmer on hand and don't mind the noise and smell, you can place bundles or wheat heads beaten from their stalks into a clean trash barrel and "stir" them vigorously with the machine. Again, in time you'll find that most of the wheat berries have been liberated—and now it's time to winnow away the chaff.

Winnowing can be as high tech or low tech as you desire. Let Mother Nature do most of the work for you as follows: gather your threshed wheat in a large bowl or 5-gallon bucket, and grab another vessel with as wide an opening as possible, like a galvanized wash tub that's almost 24-inches in diameter. Take the

works outdoors and into the wind. Set the wide-mouth vessel on the ground, grab a handful of threshed wheat and drop it slowly from a standing height into the wide-mouth vessel. You might need to adjust your point of release depending on the wind conditions. As the grain drops, notice that the wind whisks away the chaff. *Voilà!* You have clean wheat berries, or nearly clean, anyway. You might have to repeat the process a few times to remove 99 percent of the chaff; if the wind is fairly stiff, you might simply be able to slowly pour the wheat from the 5-gallon bucket into the wide-mouth vessel. Experiment with pouring from a few steps up on a stepladder—the longer the drop, the more chance for the chaff to catch the breeze.

Obviously, if you don't have natural wind, you can set up a winnowing station where you drop the wheat in front of a fan. We've also seen some disposable winnowers that folks cobbled up using a couple of cardboard boxes and a fan or two. Essentially the wheat is slowly dropped into a tall box past paired openings where a fan moves air from one side of the box out the other side. If you get such a contraption to work satisfactorily, you could construct it using plywood or other more permanent material for use every harvest season.

If the seed-dropping method doesn't appeal to you, you might try a method that was used by many of our ancestors on a relatively small scale. All you need is some wind and a winnowing tray. Find yourself a wide, shallow basket or build a broad, shallow lightweight box (use a cardboard box if that's what you have). Add wheat and use the container to throw it up into the air in a fairly compact grouping. As the grain falls back into the winnowing tray, the natural, or human-made breezes will carry some of the chaff away. Do it enough times with sufficient breeze and as above, you'll wind up with wheat that's more than clean enough to cook as is or grind into various meals and flours.

Store the threshed and cleaned wheat berries in plastic bags, glass or plastic jars or other containers in the freezer until you're ready to grind what you need for a few days. In this case, you don't need to worry about what moth or other insect

one direction and the stalks the other. Tie the bundles (sheaves) with a wheat stem or piece of twine. Shock several bundles by stacking them together (leaning against one another teepee style) with the seed heads up. If you're worried about moisture, set a couple of bundles horizontally across the top. You could also simply haul bundles or loose wheat stems (with heads oriented together) into a well-ventilated and dry barn or mudroom and allow them to dry unmolested by rodents and birds until you can thresh out the berries easily with your hands. If they're crunchy, you're good to thresh and store. If they're still soft or chewy, you'll want to allow

laid its eggs on your hard-earned grain. If you don't want to or cannot freeze your bounty, then you might try sprinkling it with diatomaceous earth before closing it up tight in glass or plastic containers.

If you happen to be a home brewer and can rig up a way to bathe (fumigate) your wheat (in a nearly sealed container) with the carbon dioxide escaping from the brew vessel's airlock, then you just might be able to kill any eggs, larvae, or pupae by depriving them of oxygen. If you go this route, you may as well allow the wheat to be in the CO² environment for a day or two. You'll still want to monitor the stored wheat carefully and freeze as much as possible.

USE IT UP

Wheat berries are incredibly versatile as a food source. Boiled or steamed, you can eat them much as you might pearl barley or rice—and you don't need to think so far ahead as to soak them overnight although there's nothing wrong with soaking.

Add two cups of winter wheat berries (be sure to sort for any stones that may have entered the scene during threshing) along with 6-7 cups of water to an appropriate-sized saucepan, bring to a boil and then simmer for about an hour. Pour it all into a colander and rinse. You can serve this delight with butter and maple syrup, or chill and add it to a salad, or use as a starch as you might pasta and rice.

If you happen to own a rice-cooker machine you should definitely experiment with it. Add the recommended amount of grain and water for a "normal" batch and turn the machine on. Wheat might take a bit longer than rice, and you might need to modify the ratio of grain to water some, but once you figure it out, you'll

have fluffy soft (not mushy) wheat to use in any way you can imagine.

If you get tired of eating wheat berries as you might eat rice, you can puff them much as you would pop popcorn. The easiest method for puffing wheat is to place a small amount of oil in a heavy-bottomed saucepan, add a quarter cup of wheat berries or so, cover and shake until they "pop." The popping won't be as profound as it is with popcorn, but the wheat will be rendered soft and crunchy—easy to chew. Some folks skip the oil and just keep the pan well agitated. Use the puffed wheat as you might use nuts—as snacks, in salads, crushed as a garnish, you name it. You can also use crushed or even more finely ground (run some through the blender if you have one) puffed wheat as a breakfast cereal. Just add some cream or whole milk, a bit of honey or maple syrup and a dab of butter—wow! Try some crushed puffed wheat on your homemade vanilla ice cream with a dribble of maple syrup—double wow!

Fresh whole-wheat flour also makes excellent pancakes, muffins and other quick breads. The first step for any baking process is to measure out your wheat berries and grind them into flour. If you don't have a small grist mill, experiment with a blender to render your wheat into flour. You can sift it if you'd like to get it really fine or to remove bran. Once you have a fine flour, take a cup of the stuff and mix it with 2 teaspoons of baking powder. Next mix together 2 teaspoons of honey (adjust to suit your own taste), 1 cup of whole milk, 2 farm-fresh eggs, and a tablespoon of melted butter (substitute coconut oil, cold-pressed sunflower oil or cold-pressed peanut oil for variation). Finally, fold the two mixtures together and drop onto a hot, greased griddle. Serve these pancakes any

way you like, and don't be afraid to refrigerate leftovers—pack them in future lunch pails for some really happy family members.

Wheat berries can also be fed to your livestock, although they should comprise only part of their diet. Chickens, hogs, cattle, or chickens will readily eat whole berries. You should probably limit the amount you feed the hogs because of the tendency for the berries to swell in the gut. If you grind the berries first, your poultry will thank you and your livestock will digest quite a bit more of the good stuff contained in them.

If you find yourself with a ton (literally) of extra shocked wheat, go ahead and feed entire bundles to the animals (remove any ties, unless you used wheat stems). Poultry will have fun threshing and eating; hogs and ruminants will enjoy munching seed heads, and they'll get a good dose of roughage at the same time. As always, feed grain as a treat rather than a mainstay to most of your animals and you'll avoid issues associated with hot rations.

There are many other grains and grain-like crops that you can grow specifically for the food and storage value of the ripe seeds; some are sketched below. Many of these turn out to be cover crops also. Check out Gene Logsdon's wonderful book, *Small Scale Grain Raising*, for all you ever wanted to know about raising, processing and using grains on a homestead-sized scale. 🌾

OSCAR H. WILL III is the editor-in-chief of *Grit* magazine (www.grit.com) and co-author, with HG editor Karen K. Will, of *Plowing with Pigs and Other Creative, Low-Budget Homesteading Solutions* (New Society Publishers 2013).



Wheat



Barley



Rye



Rice



Oats



Millet



Maize