

Turn a Bird Feeder

Rudi Franke

Our back yard is a wilderness paradise close to a large mid-western city. As a longtime bird lover, I decided to add a bird feeder to our landscape. I wanted something with ample seed capacity, excellent weather protection for the birds and seeds, and good resistance to marauding squirrels. I combed through catalogs, but everything seemed inadequate and overpriced.

Since I couldn't find the right feeder ready-made, I built my own. I chose a cylindrical seed reservoir, so I would not have to make a jointed structure to hold glass panes. A cylindrical feeder also meant I could put my lathe to good use. I mounted the feeder on a post made from PVC drainpipe, which won't rust or decay.

The feeder shown here is my latest version, with simple, practical features that make it easy to use and maintain. High winds won't blow off the top, which protects the seeds and birds from getting wet in rain or snow. Six birds can feed at once. The turned wooden top and bottom hold a large seed reservoir made from an acrylic plastic tube. I designed the feeder so that I could turn the bottom and perch from the same piece of wood. Using a 4"- (102 mm-) diameter PVC pipe keeps the feeder stable; oiling it keeps the squirrels at bay. I also added a large plastic disk on top to keep red-shouldered hawks away.

Begin at the bottom

The bottom of the feeder requires the most work to fabricate, so it is a good place to begin. Rough-cut a circle from a 12" (30 cm) square blank of clear $\frac{3}{4}$ " (19 mm) wood. I used tulip poplar. Mount it on a faceplate and turn it round. Make a similar disk for the feeder top.

Mark lines 60° apart on the bottom disk to locate holes in the rim for $\frac{1}{4}$ " (6 mm) dowels to hold the perch to the bottom's center. Mark a bold red line on one side of the blank from the outer perimeter toward the center. This will help you orient the perch and center portion properly once you separate them. Then mark a series of bold red lines $\frac{3}{4}$ " (19 mm) from the edge of the disk and parallel to it (*Photo 1*); these will appear as a reddish blur while the lathe is running, to help show you the inner edge of the perch.

Remove the disk from the faceplate to drill the dowel holes on the rim. Use the guidelines on the face to locate the hole positions. Hold the blank on edge in a woodscrew clamp or clamp it to a fence on the drill press table. Use a square to be sure the guideline is vertical before you drill a hole. Drill these holes oversized for a $\frac{1}{4}$ " dowel. Try a $\frac{9}{32}$ " (7 mm) bit and do a test fit. If the dowel does not slide into the hole easily, go up to the next-largest bit.

Some fairly simple turnings create an attractive, sturdy feeder that will draw many birds to your yard.

Do not worry about the dowel being too loose; the geometry of the finished piece holds the perch securely in place. Drill six holes at least 3" to 3½" (76 to 89 mm) deep; the deeper the dowels go into the center, the better. Drill small holes on the face at each of your red marks. Flip the disk over and draw another series of red lines where the holes appear.

Remount the blank and draw a 6"- (150 mm-) diameter circle on it to mark the outside of the groove for the plastic seed reservoir. Make a light initial cut with a thin parting tool, then check with the plastic tube to see if you have it right. Once you have the outside of the groove established, test-fit the tube again. When it fits, cut the groove at least ⅛" (3 mm) deep and a bit more than ⅛" wide. The extra width allows for expansion and contraction of the wood (*Photo 2*).

Round over the edge of the blank to begin shaping the perch and then begin rounding the inner edge of the perch, about ¾" (19 mm) from the edge, while also removing about 1" (25 mm) of wood toward the center of the disk.

Cut from both sides. When you have removed ¼" from each side, you will begin to see the holes for the perch supports. Use them to gauge how much more material to remove so that the perch ring does not separate completely. Stop when there is still about ⅛" of wood left. Sand the outer profile and redraw your red indexing mark across both pieces.

Remove the disk from the faceplate and use a handsaw to cut away the perch (*Photo 3*). Use a sanding-drum attachment in the drill press to smooth and refine the inner profile of the perch.

Saw away most of the scrap attached to the disk. Remount it onto the faceplate, turn a smooth profile on the rim, and turn a shallow

cove between the slot for the seed chamber and the outer rim. Give the piece its final sanding and drill a ⅝" (16 mm) hole through the center.

To attach the perch to the center part, lay both pieces on a flat surface with the indexing marks aligned. Insert a dowel into a hole in the perch, apply a bit of waterproof glue (I used Gorilla glue) to its inner end, and push it into the corresponding hole in the center part (*Photo 4*). Try not to get any glue on the perch. Take a second dowel and push it through

a hole on the opposite side of the perch. Apply glue and push in the dowel. Carefully center the two parts and glue in the remaining dowels. Let the assembly dry overnight.

Add the anchor

The anchor holds the feeder firmly on the bell-shaped, or female, end of the PVC pipe. It consists of two wood disks and a ⅝" dowel 10" to 12" (25 to 30 cm) long that passes through them and the feeder bottom (*Photo 5*). ▶

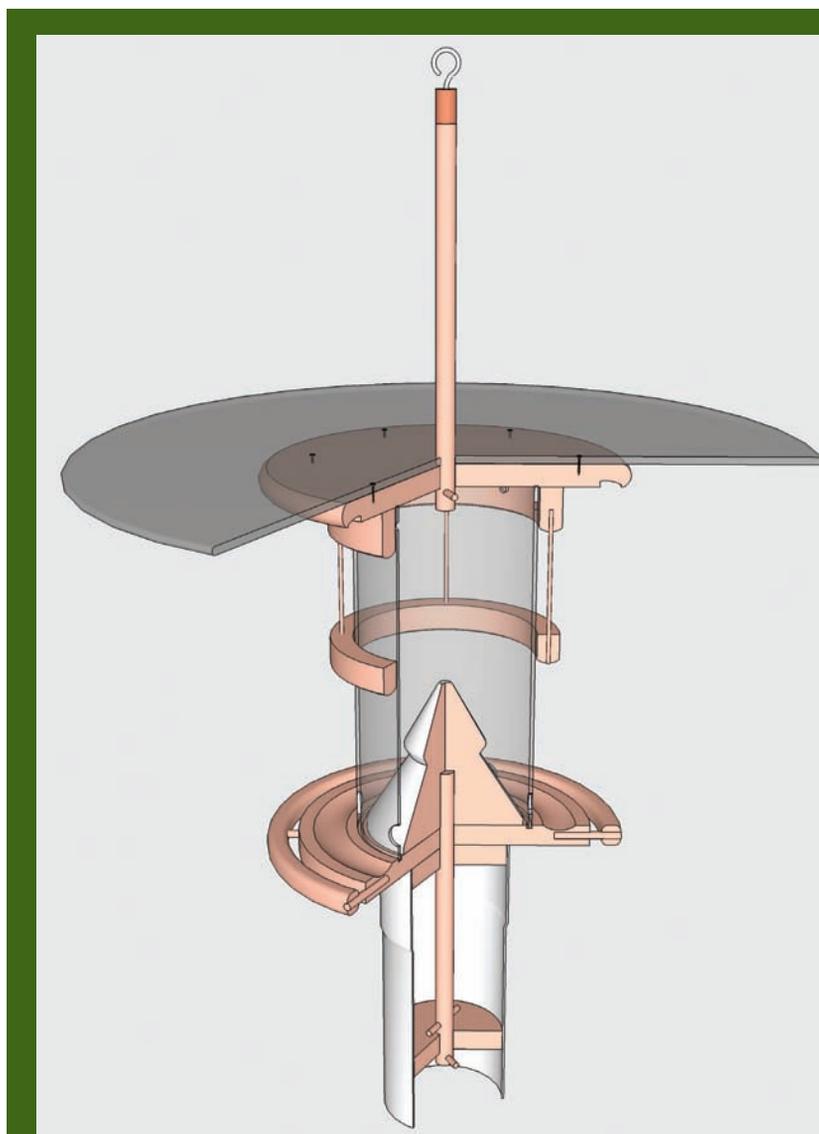


Figure 1. This cutaway shows how the parts are shaped and assembled. The large hawk guard on the top is optional.



1 Pencil guidelines locate holes for dowels. The red marks are guides for turning the perch and keeping the pieces oriented.



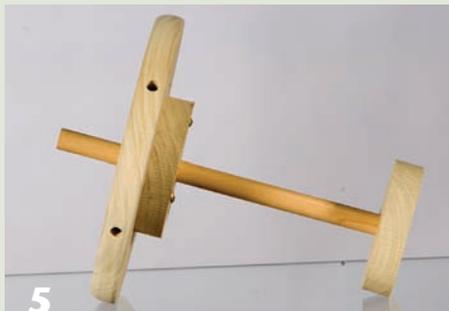
2 The feeder bottom has a recess for the plastic seed tube. The outer perch ring is ready to be sawn free.



3 The perch, separated from the feeder bottom, is ready to be sanded.



4 Center the feeder bottom and perch, aligning holes; then glue dowels to anchor the rim to the feeder bottom.



5 Two small disks anchor the feeder in the post. A dowel and screws connect the pieces.



6 A restraining ring is turned from scrap and the center is sawn away.

Turn the two disks from scrap, making one to fit the bell end and the other to fit the straight section of pipe. Turn them about $\frac{1}{8}$ " smaller than the inside diameters of the pipe, to allow for seasonal expansion of the wood. Then drill a $\frac{5}{8}$ " hole through each for the dowel.

Drill two $\frac{1}{4}$ " holes near the end of the dowel for wooden pins to hold the lower disk in place. Drill three pilot holes in the upper disk, so you can screw it to the underside of the feeder bottom. (I used brass screws throughout both for looks and corrosion resistance.)

Next, drill a hole centered on the rim of the upper disk for a 2" (50 mm) screw. Screw the disk to the feeder bottom, using the dowel to keep the two pieces aligned. Then drive a screw through the hole in the edge to anchor the disk to the dowel.

Shape the top and add two rings

Mount the remaining 12" disk onto a faceplate and turn a deep recess about $\frac{3}{4}$ " from the outer edge. This makes a drip ring, which prevents rainwater from traveling along the underside of the top and getting into the seed reservoir. Sand the feeder top and drill a $\frac{5}{8}$ " hole through the center for the lifting post.

Next, make the lower restraining ring. It helps ensure that the top will not blow off in a stiff wind. Make it from clear stock $\frac{3}{4}$ " to 1" thick and turned to a 7" (18 cm) diameter disk. Use a parting tool to make a groove $\frac{1}{2}$ " from the edge. Remove the piece from the lathe and drill four evenly spaced $\frac{1}{8}$ " (3 mm) holes for dowels that hold it in place (*Photo 6*). Use a scrollsaw or coping saw to cut

the ring free from the center, then smooth the inside of the ring with a sanding drum on the drill press. Round over the inside and outside of the ring.

Next, add a positioning ring to the underside of the top, which helps you replace the top after you fill the seed reservoir. It is connected to the restraining ring. To make the positioning ring, glue together two pieces of $\frac{3}{4}$ " stock about 7" square. Rough out the ring on a bandsaw, center it on the underside of the feeder top, and glue it in place. Let the glue cure overnight, then mount the feeder top onto the lathe and turn the ring to its final size and shape inside and out. Use the restraining ring to check the size. You want the ring to have a wall about $\frac{3}{4}$ " thick and to be a loose fit over the plastic seed tube (*Photo 7*).

Place the restraining ring over the positioning ring and drill through the holes in the restraining ring to make mating holes in the positioning ring. Try not to drill into the feeder top. Connect the two rings with four $\frac{1}{8}$ " dowels, cut long enough to leave $4\frac{1}{2}$ " to 5" (114 to 127 mm) of space between the rings.

Lifting post and seed diverter

The lifting post is a $\frac{5}{8}$ " dowel 13" (33 cm) long. Turn one end for a ferrule made from a 1"-long piece of $\frac{1}{2}$ " copper plumbing pipe. Push on the ferrule, then drill a pilot hole in that end for a large screw eye. (The ferrule keeps the dowel from splitting.) Put a drop of glue in the hole before screwing in the eye. At the opposite end, drill a $\frac{1}{4}$ " hole through the dowel about 1" from the end; it will hold another dowel to keep the post from pulling out.

The cone-shaped diverter cuts down on seed accumulating in the bottom of the feeder, out of the birds' reach. Make a blank from six scraps of $\frac{3}{4}$ " stock. Cut the pieces roughly to size, ranging from a

maximum of 6" (150 mm) down to 2" in diameter (*Photo 8*).

Drill a $\frac{3}{4}$ " hole in the center of each blank. Glue them together, using a $\frac{3}{4}$ " dowel to keep them aligned. Try to keep glue away from the dowel, and twist it frequently to be sure it is not glued in place. Clamp the blocks and remove the dowel. Glue a piece of scrap over the dowel hole at the top. After the glue is cured, attach the blank to a faceplate and turn its profile (*Photo 9*). Sand it while it's on the lathe, then give it a coat of white paint; that will help you gauge when the feeder needs refilling.

Drill the seed reservoir

The seed reservoir is a 6"-diameter cast acrylic tube. I bought mine from TAP Plastics (tapplastics.com), where it is listed as 6" OD \times 12" clear cast acrylic tubing ($\frac{1}{8}$ " wall). Use a hole saw to cut feeding holes, which are $\frac{3}{4}$ " in diameter. The top of the tube has six ventilation holes, $\frac{1}{4}$ " in diameter.

Prepare two drilling guides by laying out center points for the holes on strips of paper $1\frac{1}{2}$ " wide by 19" long (38 mm by 48 cm). The feeding holes' centers should be at least $\frac{1}{4}$ "

from the bottom of the tube after it has been inserted into its groove. Mark that dimension along the length of one drilling guide. Mark a starting point on that line about 1" from one end. Place the end of a metric ruler at that point and mark vertical lines at 80, 160, 240, 320, and 400 mm. Mark the second drilling guide the same way for ventilation holes, centered 1" from the top.

Place the tube on a level surface, wrap the paper guide around the bottom, and tape it to the tube at each of the six marks to prevent it from shifting when you drill. Attach the second strip to the other end of the tube (*Photo 10*).

Use a wide-open drill press vise or a V-block to steady the tube for drilling. To avoid shattering the brittle plastic, cut a disk from $\frac{3}{4}$ " scrap to fit inside the tube and support it. Drill a series of ever-larger pilot holes using your sharpest drill bits. Finish with a bit that is the same size as the pilot bit on the hole saw. Start slowly with the hole saw, watching for chips to appear. Push the hole saw gently into the plastic. Be very careful ▶



7 The feeder top has a groove to serve as a drip ring. Smaller disks glued to the top are turned to form a positioning ring.



8 Glue up blanks of scrap for the cone-shaped seed diverter.



9 The finished seed diverter. All it needs is a coat of white paint.



10 To locate feeder and ventilation holes, mark two strips of paper and tape them to the ends of the acrylic tube.



11 Measure from the feeder bottom to the center of the anchor disk to locate a screw to hold the feeder on its post.

when drilling the six ventilation holes near the top; use sharp bits and drill slowly to achieve the final diameter.

Our neighborhood has red-shouldered hawks that feed on the other birds, which is why I incorporated a hawk guard: an acrylic disk 2' (61 cm) in diameter and ¼" thick. (TAP Plastics sells this size ready-made.) Drill a ⅝" hole in the center for the lifting tube. Attach it directly to the feeder top with six to eight brass

screws. Of course, if hawks are not present where you live, omit the guard.

Apply a finish

The exposed wooden parts of the feeder should have the most weather- and ultraviolet-resistant finish you can find because the sun and the rain will constantly work their mischief. I used three coats of Minwax Helmsman Spar Urethane Clear Semi-Gloss, which leaves a natural, glossy finish.

Apply finish to all surfaces of the feeder top, including the top of the lifting post. Finish all of the wooden feeder parts, except the painted seed diverter cone, before assembling the feeder.

Before finishing the completed bottom, remove the seed diverter cone. Don't allow finish to build up in the groove for the seed reservoir. Keep the finish away from the dowel that holds the seed diverter and anchor disks. Otherwise, apply three coats of finish to all surfaces.

Assemble

Lay down three evenly spaced, 1"-long beads of silicone adhesive into the groove for the seed reservoir. Press the reservoir into place with the feeder holes at the bottom. Use a flat toothpick or small putty knife to spread the squeeze-out along the groove. You don't need adhesive all the way around the groove. Let the adhesive cure overnight.

To attach the feeder to the mounting post, measure the distance from the bottom of the feeder bottom to the center of the lower anchor disk (*Photo 11*). Transfer that measurement to the PVC pipe and drill a pilot hole. Insert the anchor assembly all the way into the pipe and drill through the pilot hole into the lower disk. Withdraw the bit and drive home a 1" brass screw.

Pick a spot in your yard for the feeder. Dig a hole 2½ to 3' (75 to 90 cm) deep. Drop in the PVC tube and fill up the hole, making sure the post is plumb.

Take a long pole and screw a large hook on one end so you can use it to remove the feeder top from the ground. I used an 8' (2.4 m) length of closet rod. With the feeder in place on its post, lift up the feeder top and lower it onto the seed chamber, getting a feel for how the restraining ring and positioning ring guide the top into place. If you did everything right, the top should be easy to remove and replace. Stand on a stepladder when adding seed to the reservoir.

Enjoying your feeder

Position the feeder where you can observe the birds, possibly from the room where you spend the most time.

Buy a 50-lb (25-kg) bag of sunflower seeds, fill the feeder, and let the fun begin. You will be amazed at how quickly the seed level goes down, especially when the ground is snow-covered.

Clever squirrels can work their way up the post to feast on the seeds. To foil them, apply oil to the plastic pipe; any oil will do. It's amusing to watch the squirrels when they hit the oil and lose traction. When they try often enough, though, they wipe away the oil, so you will have to lubricate the post on a regular basis. ■

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