

A SCREEN FOR CLEANING SMALL LOTS OF SYCAMORE SEED

CHARLES D. WEBB and EDWARD J. PORTERFIELD 1

Removing hairs from seed of sycamore (*Platanus occidentalis L.*) is a disagreeable and often an unhealthy task. The hairs attached to the base of each seed break up into a fine dust, which irritates the skin and causes respiratory ailments. In the absence of commercial cleaners, some nurseries have improvised methods for cleaning the seed—a fertilizer spreader has been modified to effectively break up the heads, releasing the seed to fall through and the hairs to fluff up and rise to the top.²

¹ Plant Geneticist and Forest Research Technician, respectively, USDA Forest Service, Southeastern Forest Experiment Station, Athens, Ga.

² Personal communication, July 22, 1966, with Walter Chapman, Forest Management Supervisor, Kimberly-Clark Corp., Coosa Pines, Ala.

However, bulk methods of screening seed will not work for genetic studies of sycamore because numerous small seed lots must be kept separate. We devised an inexpensive screen for cleaning seed rapidly without contamination among lots and that largely eliminates the irritation of dust (fig. 1).

Although designed to handle small lots of seed, the device can be used to clean larger quantities. To determine its bulk capacity, one man cleaned a half-bushel of dried heads in 1 hour and 15 minutes, a yield of about 6 pounds of cleaned seed.

The principle of the device is simple: The seed are rubbed by hand against a screen of 1/4-inch hardware cloth to remove the hairs (fig. 1). As the cleaned seed fall, a 20-inch window fan draws air through a box to catch the dust and carry it outside. Two sloping baffles deflect the cleaned seed toward the front of the box and onto a collection tray. If the seed are dry, one pass through the screen usually is enough to clean them, but occasionally a second quick pass is necessary.

We vented the air and dust to the outside by positioning the device in front of an outside doorway. The doorway was temporarily blocked off except for an opening big enough for the window fan. The intensity of the airflow through the box was regulated by sliding the box closer to or farther from the fan.

Several safety precautions are recommended: Although the device carries most of the dust to the outside, the operator should wear a lightweight, gauze face mask as an extra precaution. He should also wear leather work gloves to keep the sharp-pointed seed from sticking into his fingers.

The construction of the device is simple and inexpensive. The materials needed are as follows:

Quantity	Item	Use
2	1/2 -in. by 4-ft. by 8-ft. interior A-C plywood panels	Sides, top, bottom, front, back.
3	8-ft. by 2-in. by 2-in. pine boards	Corner bracing.
1	2 by 2-ft. welded hardware cloth, 1/4-in. mesh	Screen.

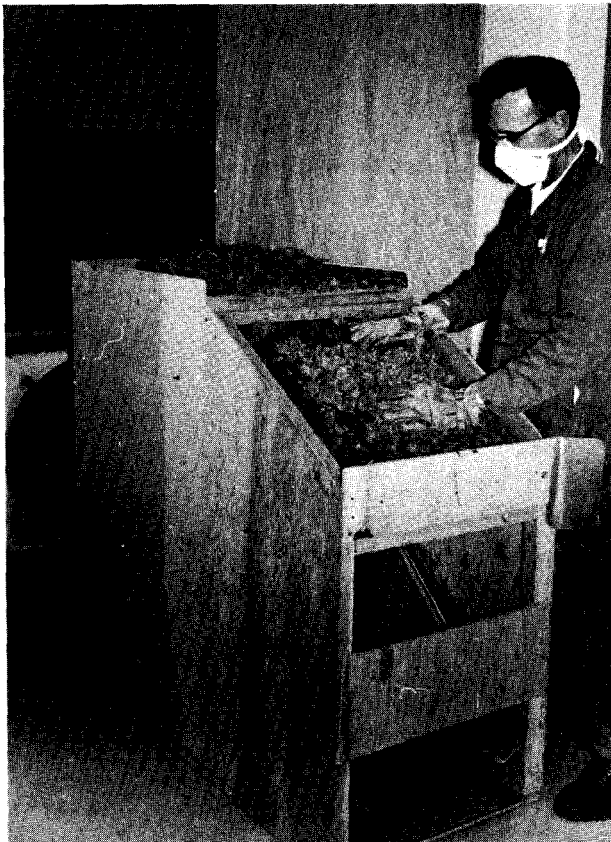


Figure 1.—The seed-cleaning screen. Note position in front of the fan in the doorway.

Quantity	Item	Use
3	22 by 26-in. aluminum or steel sheets, 24 or 26 gage	Baffles and formed surface.
1	20-in. window fan	Creation of air current.

The most expensive single item is the 20-inch window fan. Cheap models are available with the blades attached directly to the shaft of the electric motor. Although this type of fan will work satisfactorily, the motor is directly in the stream of dust and airflow and may eventually be damaged by the dust.

The dimensions of the box (fig. 2) are directly from the working prototype. Other modifications are conceivable, depending on the builder's ingenuity.

Therefore, a more expensive fan that either has a sealed motor or is belt-driven by a motor set to the side is recommended for prolonged use.

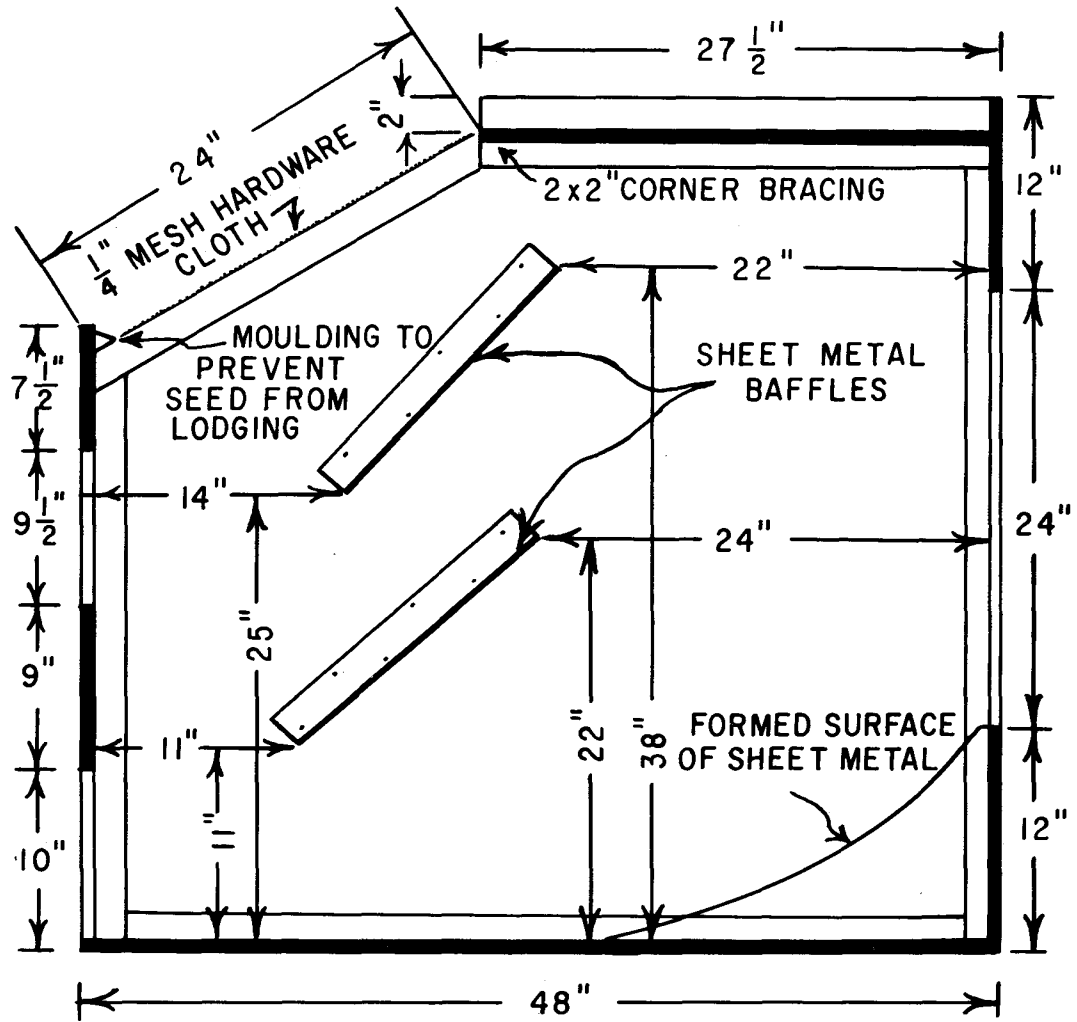


Figure 2.—Side view of box showing positions of baffles and openings for airflow. Scale: 1 inch = 10 inches.