

# Cleaning Buds with Clipper 2B

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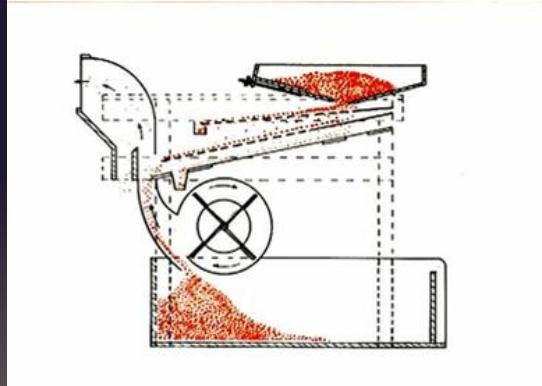
Bald Butte Lavender Farm is in Whitman County on the Palouse Prairie of southeastern Washington. Our mission is to provide sustainably, locally grown lavender products, plants, and hand-made crafts with friendly personal service and excellent follow-up support.

The following presentation describes the history and basic operation of the AT Ferrell Clipper 2B farm grain and seed cleaner. In addition, we also discuss how the Clipper was modified for cleaning lavender buds, and the hacks we implemented for improving its operation and effectiveness.

# Clipper 2B History/Operation



Clipper Model 2B



The Clipper Principle

Our Clipper Model 2B was built between 1940 & 1950 by the A.T. Ferrell Company in Saginaw, Michigan. Twelve screens were furnished with each Clipper for cleaning agricultural grains and seeds.

Using the hand crank or motor, seed was fed into the hopper and onto the vibrating top scalper screen where large debris was removed through the stem chute. The good seed and smaller debris passed through the screen and onto the vibrating lower sifter screen and into the vertical fan air column. Smaller debris were either blown out of the Clipper or passed down the dust chute. The clean seed moved down the screen falling into the grain box.

# Clipper Modified for Lavender



Delivered Clipper 2B



Modified Clipper 2B

We purchased our Clipper 2B in October 2024 for \$300 from a family in Colorado. The Clipper was modified for processing lavender buds by Tom Binder at Crockett Road Lavender Farm in Milton-Freewater, OR. Tom replaced the scalper and sifter screens, electric motor, and pulley belts. The new installed screens were hand-made and personally autographed by an A.T. Ferrell Company employee. Lavender buds and smaller debris are very light in weight, and therefore, the fan cleaning operation was disabled for removing the smaller debris. Tom also provided an emergency on-off switch for safely operating the Clipper.

# Portable Clipper Platform



Platform Bottom View



Platform Top View

We process and clean lavender buds in our barn. The Clipper, weighing approximately 210 pounds, was stored in the barn on a portable platform and moved into position when cleaning buds.

The Clipper's 24x60 inch platform was cut from a 4x8 foot sheet of  $\frac{3}{4}$  inch plywood. The platform was reinforced using four equally spaced 24-inch long 2x4s, and two 60-inch long 2x4s. The 2x4s were attached using either 2-inch or 2 $\frac{1}{2}$ -inch deck screws.

# Platform Caster Wheels



Wheel Dimensions



Installed Caster Wheel

We purchased 5-inch Asriniey heavy duty caster wheels from Amazon for our Clipper's portable platform. The four wheels have independent swivel and lock control, 1,050-1,400 pounds load capacity (far more capacity than required for this application), and are suitable for indoor and outdoor. The caster wheels were attached to the bottom side of the Clipper's platform using four 3-inch deck screws per wheel.

# Modified Clipper Operation



De-Budding Bundles



Adding Buds to Hooper

We tested our Clipper, which had been modified for cleaning lavender, using several cultivars which had different sized buds. These tests indicated that Clippers run a little bit different (quirks) depending on cultivar and other factors, and thus each one most likely needs some fine tuning, adjustments, or “hacks” to improve their performance. We discuss these hacks based on our personal experience and feedback from other growers.

# Hack #1 – Large Debris Chute



Large Debris Chute



Large Debris Chute

The original large stem debris chute was too short and did not direct debris into the plastic debris collection bin. Therefore, we extended the stem chute (see left image) using a 3-inch diameter soup can, 3-inch diameter flexible dryer duct, and flexible hose clamp. The Clipper's original large debris chute outlet needed to be bent to fit inside the soup can. The soup can was then attached to the Clipper's chute using a self tapping screw (see right image). Next, the flexible duct was clamped over the soup can. This hack directed the large debris into a plastic collection bin.

## Hack #2 – Dust Chute



Dust Chute



Dust Chute

The original small debris dust chute was too short and did not direct debris into the plastic debris collection bin. The dust or small debris chute was extended using a short section of rectangular metal gutter downspout and a downspout elbow (see left image). The extended chute was attached to the clipper using a 5.5-inch long  $\frac{1}{4}$ -inch screw that was inserted through a hole drilled through the Clipper's vertical support leg, a  $\frac{3}{4}$ -inch spacer board, and the gutter downspout. The screw was held in place with a nut and washer. This hack (see right image) directed the dust debris into a plastic collection bin.

## Hack #3 – Scalper Screen



NorPro Cutting Board



Installed NorPro Board

When we run the Clipper all the small debris and buds were falling through the scalper screen in the top half after leaving the hopper. Therefore, the holes in the bottom half of the scalper screen were blocked using a 15x11.5x0.05-inch plastic NorPro Cut n'Slice Flexible Cutting Board (see left image). The board was cut to size and then attached to the scalper screen using blue painter's tape (see right image). This hack speeds up the progression of the large stem debris down the scalper screen. The result was that the stem debris did not form dams blocking the flow and possibly enabling unwanted debris to fall through the screen instead of proceeding to the stem gutter.

## Hack #4 – Hopper Box



Inside of Hopper Box



Underneath Hopper Box

The flow of lavender material to the scalper screen is controlled by the width of the feeder slit in the hopper box. By inserting two 9" compression springs underneath the hopper box you can more easily control the width of the feeder slit and thus the flow of lavender material to the scalper screen. This hack (see right image) slowed down the flow of lavender material, and thus the potential loss of buds, and resulted in a better separation of buds from small and large debris.

# Hack #5 – Scalper Screen



Adjustable Rheostat



2x4 Under Clipper

The Clipper's motor speed (with 10-inch and 2-inch pulleys) was too fast thus resulting in the back flow of lavender up the scalper screen instead of down the screen. Tom Binder suggested using a rheostat to adjust the motor speed from low, medium to high. We now run the Clipper at the low setting. Even at the low setting the lavender material was flowing down the scalper screen too slowly for some cultivars. Therefore, we placed either one or two 2x4-inch board(s) underneath the Clipper box depending on the cultivar to raise the box thus increasing the scalper's downward slope (see right image). These two hacks controlled the flow and cleaning of buds.

# Hack #6 – Pulley Guard



Clipper Pulley Guard



Clipper Pulley Guard

The modified Clipper had exposed 10-inch and 2-inch pulleys with the attached pulley belt which were a safety hazard. We contacted a local metal fabricator to make a pulley guard for the Clipper. This hack covered the exposed motor pulleys and pulley belt. The installed guard protects us and others from possible injury.

## Hack #7 – Dust Fan Bracket



Clipper Fan Bracket



Removed Fan Bracket

As buds are cleaned they fall down a chute into the plastic collection bin at the Clipper's base. The Clipper was designed for cleaning heavier grains/seeds using the installed fan to remove the remaining dust through an outlet located at the top rear of the Clipper. However, this function did not operate well for cleaning light lavender buds. The fan, driven by two wooden pulleys and a fan belt, was disabled by removing the fan belt. In addition, the right and left brackets supporting the fan axle were removed. This hack created the space needed to reach into the fan housing by hand to dislodge lavender buds that became stuck in the corners of the fan housing,

## Hack #8 – Pre-Cleaning Buds



Larger Stem Debris



Screening Larger Debris

Before cleaning buds with the Clipper we remove the larger stem debris by hand or screen. This hack prevented clogging up the Clipper hopper and scalper screen, and resulted in a better bud flow, and thus cleaner buds without the necessity of a second cleaning.

## Hack #9 –Cleaning Clipper



Clean Sifter Screen



Plugged Sifter Screen

Before cleaning each cultivar and periodically while cleaning a selected cultivar we thoroughly clean the Clipper. This includes removing and cleaning the top scalper screen where larger stems and debris were screened off and lavender buds passed through; the bottom sifter screen where dust, undersized immature buds, bracts, etc were screened off; and the large and small debris chutes which occasionally became clogged with debris. Often what remains on the bottom sifter screen were the smaller immature buds which were stuck in the screen mesh blocking the flow of clean buds.

# The End Result: Clean Buds



Our Clipper 2B was modified for cleaning lavender buds, and then we implemented “hacks” for improving its operation and effectiveness. The end result were clean buds, which many customers say are the cleanest buds they have purchased. Built prior to 1950 for cleaning agricultural grains and seeds, today the Clipper 2B remains state of the art 75 years later.