GA-029 Drip-line punching work saddle

Hold flexible irrigation tube in a shallow guide while using its matched hand punch.

Controlling dimensions: US inches and feet. Metric equivalents are references. Original editorial design; no physical build, animal trial or load certification is claimed.

Before marking and cutting

Measure the stated stock sections before cutting. Use the cut-list geometry, not scale measurements from the drawing.

US inch dimensions control; millimeter values are rounded conversions. Ordinary cut target ±1/16 in (1.6 mm); fit commercial accessories before boring attachment holes.

Use limits

Original bounded garden component, not an occupied structure.

No human standing, sitting, climbing, lifting or fall protection use. No stated safe working load.

Geometry and fastener quantities are editorially checked; no prototype build, wind test or crop trial is claimed.

Materials and finished cuts

Part	Qty	Size to cut	Material and detail
P01 Base	1	24 × 3 1/2 × 3/4 in 609.6 × 88.9 × 19.05 mm	1 × 4 in board sound untreated cedar or other durable untreated wood
P02 Guide rails	2	24 × 1 1/2 × 3/4 in 609.6 × 38.1 × 19.05 mm	1 × 2 in board sound untreated cedar or other durable untreated wood; no unknown salvage
P03 End feet	2	3 1/2 × 1 1/2 × 3/4 in 88.9 × 38.1 × 19.05 mm	1 × 2 in board sound untreated cedar or other durable untreated wood; no unknown salvage

Hardware and consumables

12 #8 × 1-1/4 in screws for rails, 6 each

4 #8 × 1-1/4 in screws for feet

Hand punch and emitter matched to the actual tubing brand/diameter; not substituted by a drill

Tools

Tape measure and steel rule; Pencil, square and clamps; Saw suited to the stated stock; eye and hearing protection; Drill/driver, countersink and bits matched to fasteners; Sandpaper and edge file; gloves when handling cut mesh

Primary context and design record

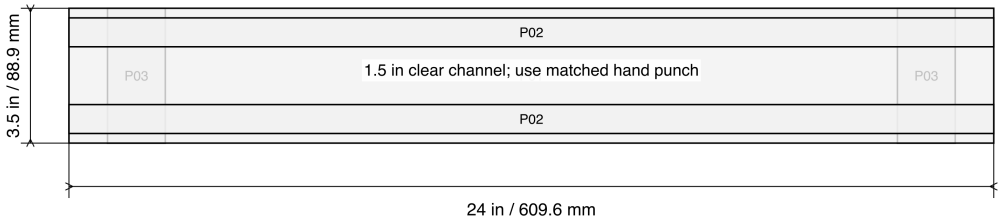
Context references; not design endorsements or certifications.

E08 · Irrigating the Vegetable Garden · Colorado State University Extension · https://extension.colostate.edu/resource/irrigating-the-vegetable-garden/

Assembly and first checks

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PLAN — looking down; rear at top; controlling dimensions in inches



Part IDs refer to the finished cut list. Shapes are not load-rated. Read assembly before cutting.
Notches, holes, fittings and operating angles: see numbered steps and geometric annotations.
Original editorial draft • B/W vector • not physically built or tested • no implied Extension endorsement

01 Plan the drip-line punching work saddle for this result: Hold flexible irrigation tube in a shallow guide while using its matched hand punch. Confirm the design reference before cutting: Channel clear width 1-1/2 in; all wood-contact edges smooth. In the drawings x runs left to right, y runs front to rear and z runs upward.

02 Verify the required stock before laying out these parts: 1 × 2 in board: actual 0.75 × 1.5 in (19.05 × 38.1 mm); 1 × 4 in board: actual 0.75 × 3.5 in (19.05 × 88.9 mm). Reject split or twisted wood and unknown salvage; thinner stock requires recalculating the joints, not simply using the listed lengths.

03 Cut and label the finished parts: 1 Base 24 × 3.5 × 0.75 in (609.6 × 88.9 × 19.05 mm), mark P01; 2 Guide rails 24 × 1.5 × 0.75 in (609.6 × 38.1 × 19.05 mm), mark P02; 2 End feet 3.5 × 1.5 × 0.75 in (88.9 × 38.1 × 19.05 mm), mark P03. Keep saw kerf outside each finished line. Rip only where the finished width is narrower than the actual stock; use a suitable guide and target ±1/16 in (1.6 mm) for ordinary cuts. Dowel triples mean length × diameter × diameter, not square dowel stock.

04 Mark rail outside edges at y = 1/4 and 3-1/4 in, leaving a 1-1/2 in clear center channel. This channel locates the tube but does not clamp it.

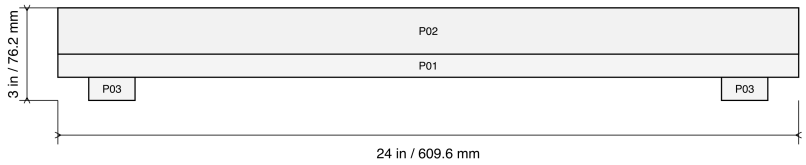
05 Round the two inward rail top corners to avoid damaging tubing. Do not rout a deep groove in the thin base.

06 Clamp rails upright and predrill six underside holes per rail, from x = 1 to 23 in. Install 1-1/4 in screws.

Complete the assembly

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FRONT — transparent assembly projection from y = 0; controlling dimensions in inches



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07 Attach the two feet beneath the base at x = 1 and 21-1/2 in using two 1-1/4 in screws per foot. Keep these pilots clear of rail screws.

08 Clamp the complete saddle to a stable bench with the center channel clear. Check that clamps do not pinch the irrigation tube.

09 Mark desired emitter positions on the tube with a measuring tape using the actual crop/system layout, not an assumed uniform spacing.

10 Place the tube in the channel and make one hole with its manufacturer-matched punch, keeping the opposite tube wall clear. Test the fit with a spare short tube first.

11 Inspect the first emitter joint and pressure-test the irrigation system at its specified operating pressure separately. This saddle is only a work fixture and is never installed in the water line.

12 Complete the acceptance checks below before putting the assembly into service. Record any changed stock thickness, fastener or equipment fit on the project sheet. The published geometry has not been physically built or load-tested.

Acceptance and intermediate checks

Channel clear width 1-1/2 in; all wood-contact edges smooth.

Tube wall is not flattened or punctured on the opposite side in the scrap trial.

Operation

No design of a potable connection, backflow protection, pump, pressure vessel or emitter spacing.

Cleaning and maintenance

Brush chips from channel; keep punch guarded and dry.