

Project Background

- The Oregon State University Seed Laboratory has performed seed testing since 1909.
- Tetrazolium testing allows farmers to know what percentage of their seeds they can expect to germinate.
- TZ testing requires that the seed be split 1 millimeter above the embryo.
- Samples arrive in the thousands but are processed in groups of 200 by hand.



Figure 2: Size of fescue seeds

Automatic Grass Seed Cutter

Saving Time and Hands: The Oregon State University Seed Laboratory has requested the design and creation of an automatic seed cutter to improve processing time and capacity.

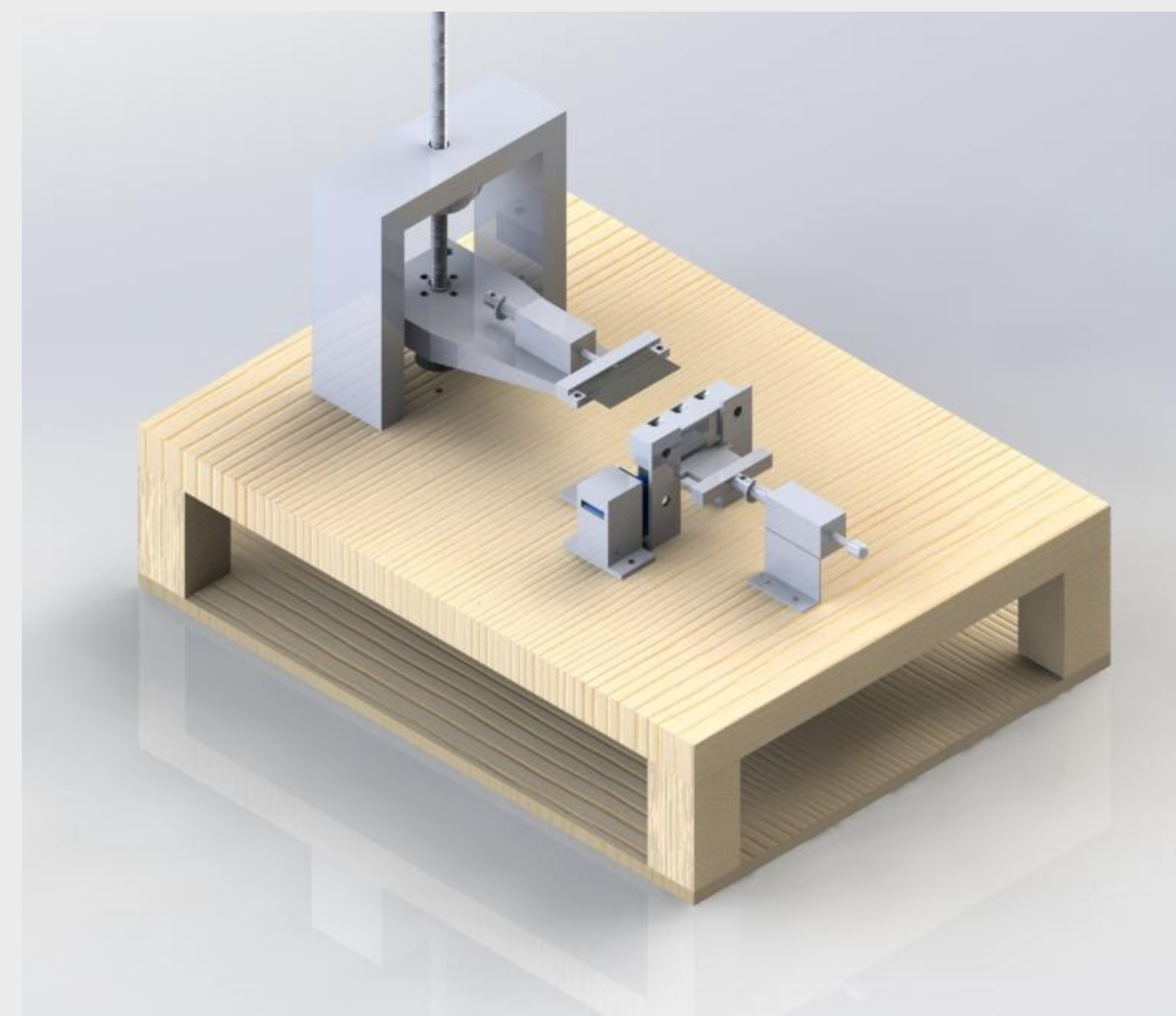


Figure 1: CAD Model

Performance Requirements

- Operation time between 15 to 20 minutes
- Cuts seeds 1 mm above seed embryo
- No larger than 14" x 14" x 14"
- Easily move around laboratory
- Quiet, no louder than ambient lab noise
- Uses standard outlet as power source

Current Design Features

- High accuracy screw lift with mounted razor blade
- Sorting bins for target and waste material
- Raised platform allows electronics to be mounted underneath, clear of debris and moving parts
- 3 vertical paths hold seeds and promote quick turnaround time

Electrical Components

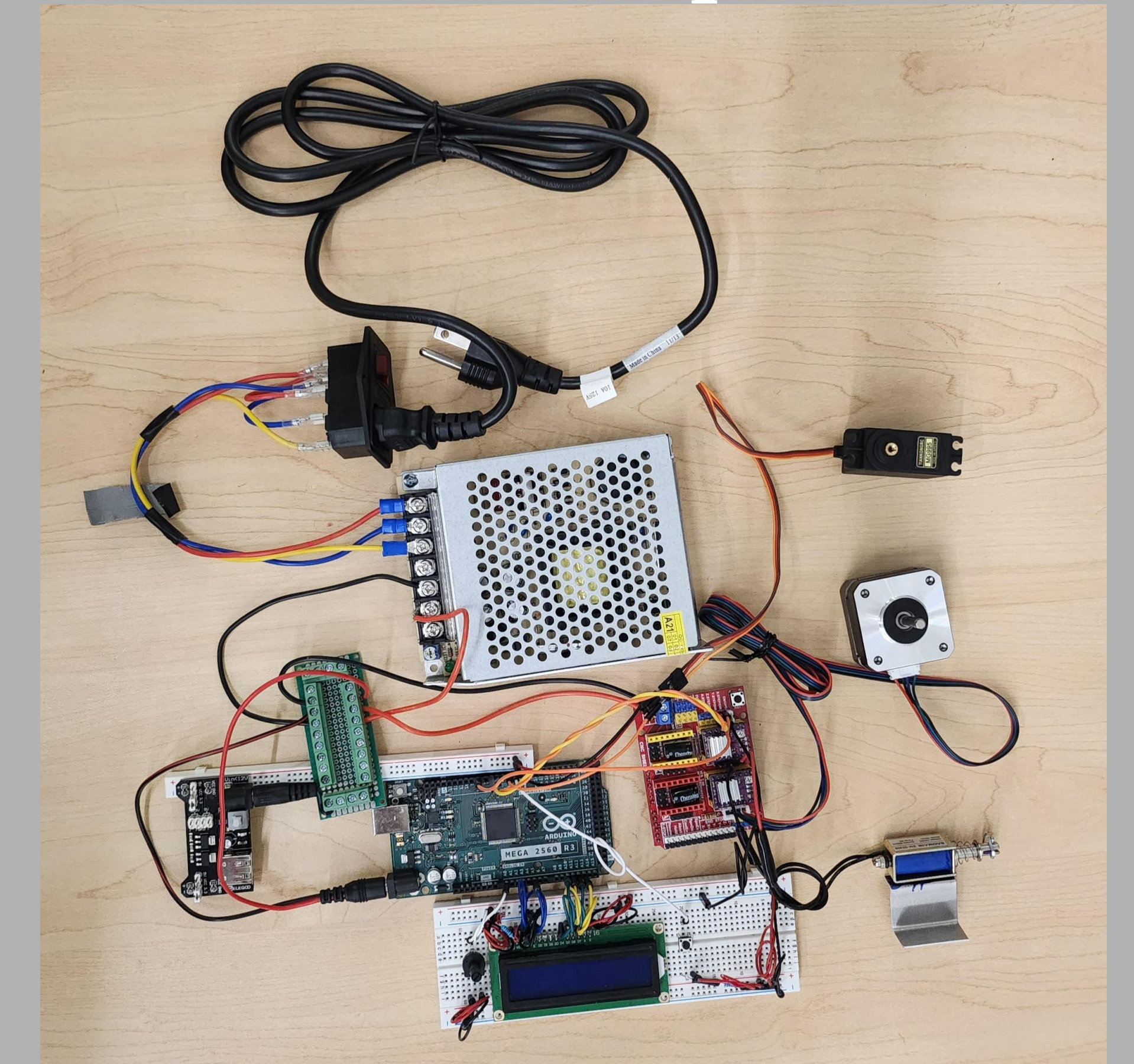


Figure 3: Hidden components

- Arduino Mega 2560
- DRV8825
- CNC shield
- 120VAC to 12VDC adapter
- LCD screen
- Dial and button
- Kill switch
- 4 actuators

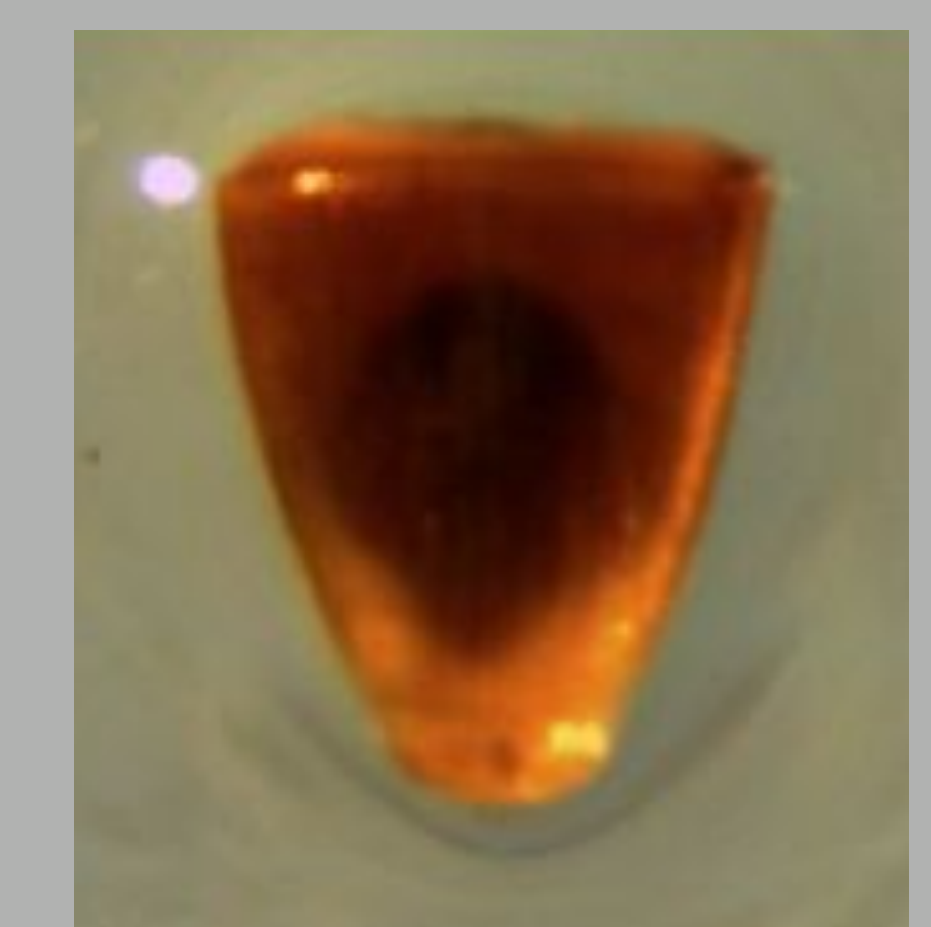


Figure 4: Post process cut seed

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