



The Fröolja Project

Hopper

- 304 stainless steel, 18GA
- 50L capacity (~6min seed supply)
- 0.44m x 0.44m x 0.44m
- Empty weight: 1.5kg
- Custom design
- Clear, polycarbonate viewports
- 4 identical panels bolted together
- Screen filter stops rocks, hands, etc.

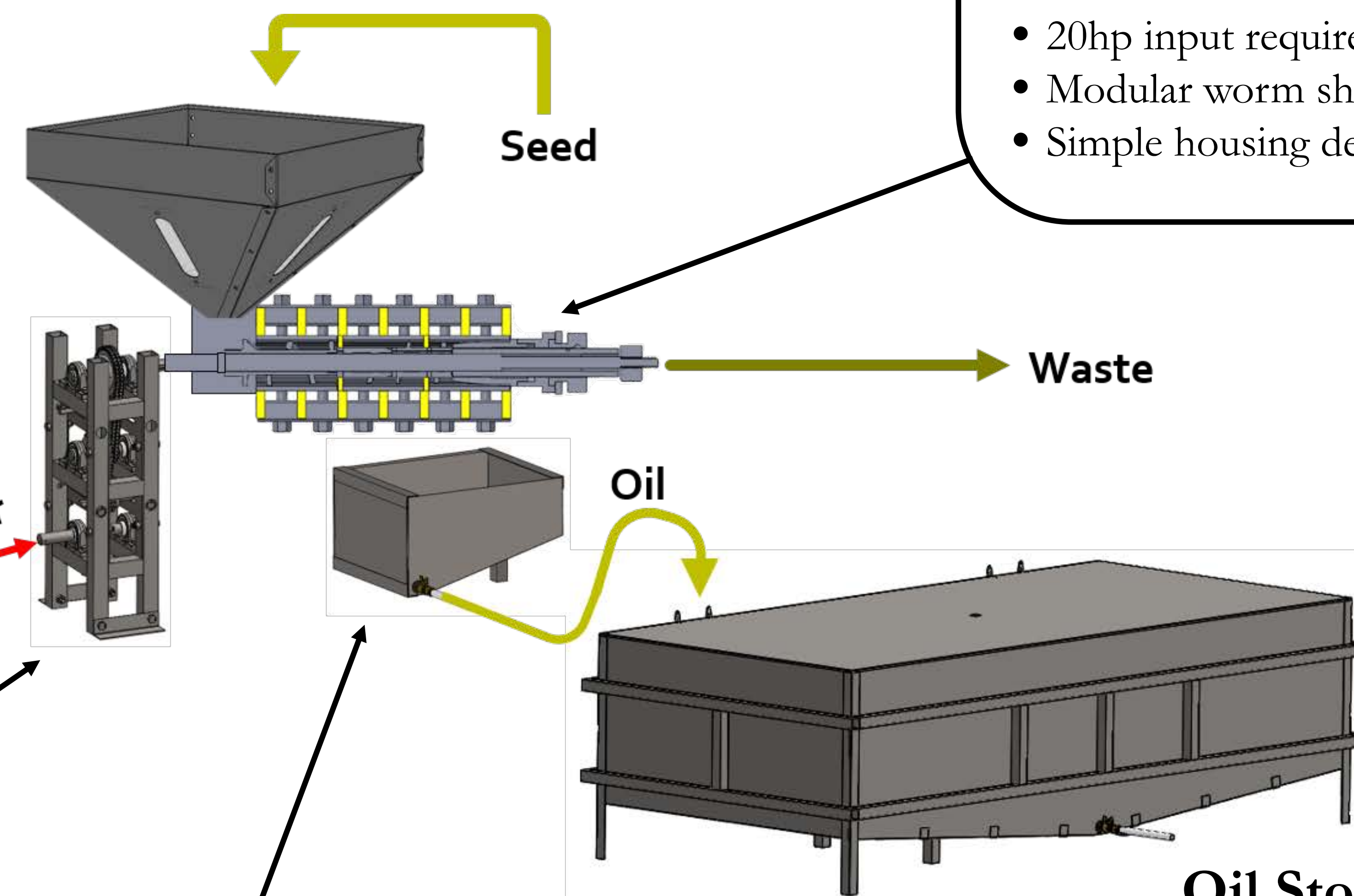
Tractor

- Massey Ferguson 385
- 70hp PTO output capability
- Power Take-Off available at 540 rpm
- Diesel
- 85hp engine
- 3.8m x 1.9m x 1.8m
- Weight: 2,500kg



Expeller

- Manufactured by Shreeji Expeller Industries
- 227kg seed intake per hour
- 113kg oil produced per hour (123L)
- Stepped shaft diameter (58-102mm)
- 1.33m x 0.25m x 0.25m
- 20hp input required
- Modular worm shaft
- Simple housing design



Drivetrain

- Steel frame (50mm x 50mm x 3mm thick square tubing)
- 0.45m x 0.22m x 0.88m
- Shaft diameter: 35mm
- Weight: 63kg
- Input: Tractor PTO @ 540rpm, 20hp
- Output: Expeller shaft @ 120rpm, 20hp
- Double reduction duplex chain system
- 2 x 38-tooth sprocket
- 2 x 17-tooth sprocket
- Dual chain tensioners with idling 17-tooth sprockets
- Custom design

Oil Collection Bin

- 304 stainless steel, 18GA
- 0.13m³ capacity (~1hr oil production, 130L)
- Cloth filters out seed particles
- Custom design
- 0.6m x 0.8m x 0.5m
- Empty weight: 18kg
- 2cm diameter outflow tubing with ball valve
- Distributes oil to storage containers

Oil Storage Bin

- 304 stainless steel, 18GA
- Steel frame (50mm x 50mm x 3mm thick square tubing)
- 3.9m³ capacity (~31hrs oil production, 3900L)
- Custom design
- 3.3m x 1.6m x 1m
- Empty weight: 280kg
- 2cm diameter outflow tubing with ball valve

Nate Anderson, Matt Boelens, Edwin Kpodzro, Hendrik Vermeulen

For more information on the project, visit:
engr.calvinblogs.org/17-18/srdesign18/
facebook.com/thefrooljaproject/

