

## OpenAg MVP Bill of Materials

This document will show the current and ideal bill of materials for the MVP. As you can see, the current build is \$329.57 without tax, which is about \$30 over the targeted budget of \$300. The current ideal build is listed with links, and totals out at \$241.05, without tax. With tax, it would be around \$258. This leaves over \$40 for an aeroponic expansion.

### Current Build BOM:

- 1) Enclosure, Total: \$54.20
  - a) Reflectix 16in x 25ft mylar - \$16.25
  - b) (2) 24in x 24in x 1/2in plywood - \$10.36
  - c) (8) 3/4in Side Out Elbow PVC fittings - \$12.80
  - d) (3) 3/4in x 10ft PVC pipe - \$6.84
  - e) 75pc 6-32 thread x 1-1/2in bolt and nut set - \$4.58
  - f) Duct tape - \$3.37
- 2) Lighting, Total: \$61.43
  - a) (4) Plastic Pull Chain Lamp Holder - \$13.16
  - b) (2) 6ft extension cords - \$3.14
  - c) Indoor digital timer - \$9.97
  - d) Red Winged Wire Connector - \$3.18
  - e) (2 packs of 2) GE Soft White Bright Stick - \$31.98
- 3) Brain and Power, Total: \$131.55
  - a) Plastic wire connectors - \$1.51
  - b) 4in square gang box - \$0.99
  - c) 4in 2 outlet cover - \$0.99
  - d) 6 outlet surge protector - \$7.98
  - e) (2) outlets - \$4.16
  - f) Raspberry Pi 3B Project Kit - \$84.99
  - g) SI7024 Temp/Humidity Sensor - \$9.95
  - h) 5 pack 12v power adapter - \$13.99
  - i) 4 channel relay - \$6.99
- 4) Growing Setup, Total: \$82.39
  - a) Bus Tub - \$8.54
  - b) Bus Tub Lid - \$7.81
  - c) Aquarium Air Pump - \$6.77
  - d) Air hose and connectors - \$6.02
  - e) Air stone set - \$1.98
  - f) (10) Net pots - \$2.32
  - g) Rock wool - \$14.99
  - h) pH down - \$13.99
  - i) Nutrient - \$13.99
  - j) (2) Computer fans - \$5.98
- 5) Total for entire BOM: \$329.57

Ideal Build BOM:

1) Enclosure, Total: \$46.91

- a) Reflectix 16in x 25ft mylar - \$16.25
  - i) [https://www.amazon.com/Reflectix-ST16025-Staple-Insulation-Inch/dp/B00BQSYRO/ref=sr\\_1\\_3?ie=UTF8&qid=1496639530&sr=8-3&keywords=Reflectix](https://www.amazon.com/Reflectix-ST16025-Staple-Insulation-Inch/dp/B00BQSYRO/ref=sr_1_3?ie=UTF8&qid=1496639530&sr=8-3&keywords=Reflectix)
- b) 24in x 24in x ½ in plywood - \$5.18
  - i) Local hardware store purchase (Lowes)
- c) (8) Side out elbow PVC fittings - \$12.80
  - i) <https://www.lowes.com/pd/LASCO-3-4-in-Dia-90-Degree-PVC-Sch-40-Side-Outlet-Elbow/3344664>
- d) (3) 3/4in by 10ft PVC pipe - \$6.84
  - i) <https://www.lowes.com/pd/Charlotte-Pipe-3-4-in-x-10-ft-200-SDR-21-PVC-Pipe/3133103>
- e) 75pc 6-32 Thread 1-1/2in bolt and nut set - \$4.85
  - i) <https://www.lowes.com/pd/Blue-Hawk-8-Count-6-32-x-1-1-2-in-Round-Head-Zinc-Plated-Slotted-Drive-Standard-SAE-Machine-Screws/4746425>
- f) Duct tape - \$0.99
  - i) [https://www.amazon.com/3M-COMPANY-1005-BLK-IP-1-5x5YD-Black/dp/B0018PFWCW/ref=sr\\_1\\_5?ie=UTF8&qid=1496640170&sr=8-5&keywords=duct+tape](https://www.amazon.com/3M-COMPANY-1005-BLK-IP-1-5x5YD-Black/dp/B0018PFWCW/ref=sr_1_5?ie=UTF8&qid=1496640170&sr=8-5&keywords=duct+tape)

2) Lighting, Total: \$44.14

- a) Lamp holder - \$1.23
  - i) [https://www.amazon.com/Leviton-9875-Porcelain-Incandescent-Lampholder/dp/B00002N7IM/ref=sr\\_1\\_13?ie=UTF8&qid=1496640315&sr=8-13&keywords=lamp+holder](https://www.amazon.com/Leviton-9875-Porcelain-Incandescent-Lampholder/dp/B00002N7IM/ref=sr_1_13?ie=UTF8&qid=1496640315&sr=8-13&keywords=lamp+holder)
- b) (2) 6ft extension cords - \$3.14
  - i) <https://www.lowes.com/pd/Project-Source-6-ft-13-Amp-125-Volt-3-Outlet-16-Gauge-White-Indoor-Extension-Cord/3555632>
- c) Wing wire connectors - \$1.98
  - i) <https://www.lowes.com/pd/Utilitech-10-Pack-Plastic-Wing-Wire-Connectors/999954134>
- d) (2 packs of 2) GE Soft White Bright Sticks - \$28.80
  - i) [https://www.amazon.com/GE-Lighting-32309-Replacement-1520-Lumen/dp/B017WY4IWM/ref=sr\\_1\\_1?ie=UTF8&qid=1496640773&sr=8-1&keywords=GE%2Bbright%2Bstick&refinements=p\\_n\\_feature\\_keywords\\_five\\_browse-bin%3A7801675011&th=1](https://www.amazon.com/GE-Lighting-32309-Replacement-1520-Lumen/dp/B017WY4IWM/ref=sr_1_1?ie=UTF8&qid=1496640773&sr=8-1&keywords=GE%2Bbright%2Bstick&refinements=p_n_feature_keywords_five_browse-bin%3A7801675011&th=1)
- e) 4 socket adapter - \$8.99
  - i) [https://www.amazon.com/Fancierstudio-Socket-Adapter-Holder-Splitter/dp/B00HZV2938/ref=pd\\_sim\\_60\\_11?\\_encoding=UTF8&pd\\_rd\\_i=B00HZV2](https://www.amazon.com/Fancierstudio-Socket-Adapter-Holder-Splitter/dp/B00HZV2938/ref=pd_sim_60_11?_encoding=UTF8&pd_rd_i=B00HZV2)

[938&pd\\_rd\\_r=TJV2R2QDV1ZYMRHJ4H06&pd\\_rd\\_w=SsvCz&pd\\_rd\\_wg=x6IEP&psc=1&refRID=TJV2R2QDV1ZYMRHJ4H06](https://www.lowes.com/pd/Raco-2-Gang-Gray-Metal-Interior-New-Work-Old-Work-Standard-Square-Celing-Wall-Electrical-Box/1098475)

3) Brain and Power, Total: \$93.55

- a) 4in square gang box - \$1.05
  - i) <https://www.lowes.com/pd/Raco-2-Gang-Gray-Metal-Interior-New-Work-Old-Work-Standard-Square-Celing-Wall-Electrical-Box/1098475>
- b) 2 gang electrical cover (cheaper in store, store price listed) - \$0.99
  - i) <https://www.lowes.com/pd/Raco-2-Gang-Square-Metal-Electrical-Box-Cover/50053659>
- c) (2) Outlets - \$1.18
  - i) <https://www.lowes.com/pd/Hubbell-15-Amp-125-Volt-Light-Almond-Indoor-Duplex-Wall-Outlet/1000050797>
- d) 6 outlet surge protector - \$3.97
  - i) <https://www.lowes.com/pd/Utilitech-6-Outlet-Power-Strip-Built-in-Circuit-Breaker/50211131>
- e) Raspberry Pi 3 B - \$35.99
  - i) [https://www.amazon.com/Raspberry-Model-A1-2GHz-64-bit-quad-core/dp/B01CD5VC92/ref=sr\\_1\\_5?s=electronics&ie=UTF8&qid=1496641523&sr=1-5&keywords=raspberry+pi](https://www.amazon.com/Raspberry-Model-A1-2GHz-64-bit-quad-core/dp/B01CD5VC92/ref=sr_1_5?s=electronics&ie=UTF8&qid=1496641523&sr=1-5&keywords=raspberry+pi)
- f) Raspberry Pi breakout board + ribbon, assembled - \$7.95
  - i) [http://www.robotshop.com/en/assembled-pi-t-cobbler-plus-gpio-breakout-raspberry-pi-a-b-2-3.html?gclid=CjwKEAjw387JBRDPTJePvOej8kASJADkV9TLLHNAsgYMgsLmyGsjKep3jQRaQmx0RT3pp\\_glaspxBoC-ljw\\_wcB](http://www.robotshop.com/en/assembled-pi-t-cobbler-plus-gpio-breakout-raspberry-pi-a-b-2-3.html?gclid=CjwKEAjw387JBRDPTJePvOej8kASJADkV9TLLHNAsgYMgsLmyGsjKep3jQRaQmx0RT3pp_glaspxBoC-ljw_wcB)
- g) Raspberry Pi power supply - \$7.50
  - i) [https://www.amazon.com/EVAPLUS-MicroUSB-Supply-Adapter-Raspberry/dp/B071DFTR31/ref=sr\\_1\\_2?s=electronics&ie=UTF8&qid=1496641902&sr=1-2&keywords=raspberry+pi+power+supply](https://www.amazon.com/EVAPLUS-MicroUSB-Supply-Adapter-Raspberry/dp/B071DFTR31/ref=sr_1_2?s=electronics&ie=UTF8&qid=1496641902&sr=1-2&keywords=raspberry+pi+power+supply)
- h) Breadboard and jumper wires - \$3.99
  - i) [https://www.amazon.com/Breadboard-CandyQ-400-point-Experiment-Jumper/dp/B01I9132GK/ref=sr\\_1\\_3?s=electronics&ie=UTF8&qid=1496642248&sr=1-3&keywords=breadboard](https://www.amazon.com/Breadboard-CandyQ-400-point-Experiment-Jumper/dp/B01I9132GK/ref=sr_1_3?s=electronics&ie=UTF8&qid=1496642248&sr=1-3&keywords=breadboard)
- i) SI7024 Temp/Humidity Sensor - \$9.95
  - i) [https://www.amazon.com/gp/product/B01M0BJ139/ref=oh\\_aui\\_detailpage\\_o00\\_s00?ie=UTF8&psc=1](https://www.amazon.com/gp/product/B01M0BJ139/ref=oh_aui_detailpage_o00_s00?ie=UTF8&psc=1)
- j) 5 pack 12v power adapters - \$13.99
  - i) [https://www.amazon.com/gp/product/B00FEOB4EI/ref=oh\\_aui\\_detailpage\\_o00\\_s00?ie=UTF8&psc=1](https://www.amazon.com/gp/product/B00FEOB4EI/ref=oh_aui_detailpage_o00_s00?ie=UTF8&psc=1)
- k) 4 channel relay - \$6.99
  - i) [https://www.amazon.com/gp/product/B00KTEN3TM/ref=oh\\_aui\\_detailpage\\_o00\\_s00?ie=UTF8&psc=1](https://www.amazon.com/gp/product/B00KTEN3TM/ref=oh_aui_detailpage_o00_s00?ie=UTF8&psc=1)

4) Growing Setup, Total: \$56.45

- a) Bus tub - \$7.08

- i) <https://www.walmart.com/ip/Crestware-22-1-2-x-15-3-4-x-7-Polypropylene-Bus-Tub-Gray-BT7GY/728306287>
  - b) Bus tub lid - \$7.81
    - i) <https://www.walmart.com/ip/CRESTWARE-BTLIDBK-Bus-Tub-Lid-Polypropylene-Black/710869666>
  - c) Aquarium air pump - \$6.77
    - i) <https://www.walmart.com/ip/Aqua-Culture-5-15-Gallon-Single-Outlet-Aquarium-Air-Pump/44662572>
  - d) Aquarium air hose and fittings - \$6.02
    - i) <https://www.walmart.com/ip/Fish-Tank-Air-Pump-Hose-Tube-Clear-10Ft-w-Airstone-Water-Valves-Connector-Set/46138957>
  - e) Air stone pack - \$1.98
    - i) <https://www.walmart.com/ip/Hagen-Elite-Cylinder-Air-Stone/19229844>
  - f) (10) 2in net pots - \$1.50
    - i) [https://www.1000bulbs.com/product/91006/GROW-HG2NETCUP.html?gclid=CjwKEAajw387JBRDPtJePvOej8kASJADkV9TLQ4VP273TvVj3RxGr6j0sXFFozFjQiDOi8aeLeyZ6ERoCBGHw\\_wcB](https://www.1000bulbs.com/product/91006/GROW-HG2NETCUP.html?gclid=CjwKEAajw387JBRDPtJePvOej8kASJADkV9TLQ4VP273TvVj3RxGr6j0sXFFozFjQiDOi8aeLeyZ6ERoCBGHw_wcB)
  - g) Rock wool - \$5.95
    - i) [https://www.amazon.com/Grodan-Rockwool-Propagation-Lightning-Quantity/dp/B00XQECSPM/ref=sr\\_1\\_4?s=lawn-garden&rps=1&ie=UTF8&qid=1496643185&sr=1-4&keywords=rockwool&refinements=p\\_85%3A2470955011](https://www.amazon.com/Grodan-Rockwool-Propagation-Lightning-Quantity/dp/B00XQECSPM/ref=sr_1_4?s=lawn-garden&rps=1&ie=UTF8&qid=1496643185&sr=1-4&keywords=rockwool&refinements=p_85%3A2470955011)
  - h) pH down - \$9.93
    - i) [http://www.horticulturesource.com/product\\_info.php?products\\_id=21891&gclid=CjwKEAajw387JBRDPtJePvOej8kASJADkV9TL-auhmO9yFAfL4XykFslby3e1wvtfizvdxLNPJSO0RoCQqHw\\_wcB](http://www.horticulturesource.com/product_info.php?products_id=21891&gclid=CjwKEAajw387JBRDPtJePvOej8kASJADkV9TL-auhmO9yFAfL4XykFslby3e1wvtfizvdxLNPJSO0RoCQqHw_wcB)
  - i) Nutrient - \$7.42
    - i) [https://www.amazon.com/General-Hydroponics-FloraBloom-Fertilizer-16-Ounce/dp/B003Y36AOA/ref=sr\\_1\\_6?ie=UTF8&qid=1496643488&sr=8-6&keywords=hydroponic+nutrients&refinements=p\\_89%3AGeneral+Hydroponics](https://www.amazon.com/General-Hydroponics-FloraBloom-Fertilizer-16-Ounce/dp/B003Y36AOA/ref=sr_1_6?ie=UTF8&qid=1496643488&sr=8-6&keywords=hydroponic+nutrients&refinements=p_89%3AGeneral+Hydroponics)
  - j) (2) computer fans - \$1.99
    - i) [https://www.amazon.com/DC-12V-Brushless-Cooling-Fan/dp/B06XQBH9MW/ref=sr\\_1\\_128?s=pc&ie=UTF8&qid=1496643643&sr=1-128&keywords=computer+fans](https://www.amazon.com/DC-12V-Brushless-Cooling-Fan/dp/B06XQBH9MW/ref=sr_1_128?s=pc&ie=UTF8&qid=1496643643&sr=1-128&keywords=computer+fans)
- 5) Total for Ideal BOM: \$241.05