

# Single Use is a Hard Pass in an Ecosystem

*This summer of 2020 was the summer of #ProjectMartian and the #Bioreactor. My bioreactor holds 1 cubic meter of biomass. I added 70 liters of bio inoculate to jumpstart the digestion in the bioreactor. As the system digests, the greens and browns break down and additions of 100 liters of water is all I added over summer. This week I drained the initial bioreactor. I got 264 liters of powerful fertilizer. Some of that is rainwater. But all of it is pungent and incredibly fertile. That is 70 gallons of fertilizer.*



Draining one Bioreactor to inoculate a new bioreactor. [Jim Bruner](#) | Mezzacello





This bioreactor produced SEVEN of these 39L (10Gallon) bins.  
[Jim Bruner](#) | Mezzacello

The liquid fertilizer is pungent I am not going to lie; it smells like the Union Station subway in August. But mix in a gallon of glucose-enriched water to each 39L bin and you have enough inoculate to start THREE new bioreactors. So I started two more and diluted the rest to a mixture of 1 to 3 with water and fertilized ALL of Mezzacello. This is the very essence of sustainability. This bioreactor could produce compost four times in an Earth year. That means 4,000 gallons of fertilized water to grow anything on Earth or Mars.





This is 39L of liquid life. 156 L of fertilizer from each bin. There were 7 of these: 1000L of fertilizer. [Jim Bruner](#) | Mezzacello

i am pleasantly surprised and delighted how this #Bioreactor system pays it forward. Just like life; It demands that you make more. That is the very point of life. Now I just need to manage the balance of N3 and Sulphur, probably add a filter and a fan. But for now if you live on a subway platform, you'll feel right at home. Nonetheless I am very proud of myself!



I am obviously proud of myself, even if I am dressed like a NYC subway janitor. LOL! [Jim Bruner](#) | Mezzacello