

Agriculturally-based feedstock considerations:

Most commercially available bio-based resins are produced from sugar or starch derived from food crops such as corn and sugarcane.¹ Over the past few years, the use of food crops to produce biofuels has become highly controversial; the same may happen with bio-based resins. However, this is only if the scale of bio-based polymer production grows. According to Telles VP Findlen, “If the bioplastics industry grows to be 10% of the traditional plastics industry, then around 100 billion pounds of starch will be necessary, and there is no question that that will have an effect on agricultural commodities.”²

This sentiment is echoed by Jason Clay of the World Wild Life Fund. Because sugar is the most productive food crop³ Clay explained, it makes an ideal feedstock for bio-based resin production; however, if all Bio-PE and Bio-PET came from sugarcane, we would need 2.5 times as much land in sugarcane. Unfortunately, this can not be done sustainably because, according to the Living Planet Report,⁴ our current demand for the Earth’s resources is 1.25 times what the planet can sustain.⁵ Put another way, on September 25th of this year our resource use surpassed what is sustainable. What this would mean as a financial issue is that we are living off our principle.⁶

Therefore, when considering bio-based resins, one should take into consideration the feedstock from which it is derived and the various environmental requirements that go into procuring said feedstock. While the current production of bio-based resins is not to scale to compete with sugarcane production for food, it is important to understand the environmental and social ramifications of sourcing materials from agriculturally based products.

¹ Jon Evans, “Bioplastics get Growing,” *Plastics Engineering*, Feb. 2010, www.4spe.org, p. 19.

² Ibid, p. 19.

³ 1-2 orders of magnitude more calories per ha than any other food crop. Information taken from Jason Clay’s presentation, “Biomaterial Procurement: Selected Resources,” at the Sustainable Packaging Coalition’s spring meeting in Boston.

⁴ The Living Planet Report is a biannual analysis of the carrying capacity of the globe compared with resource consumption: Population x consumption > planet.

⁵ Clay, SPC spring meeting presentation.

⁶ Ibid.