

ABSTRACT

Overused fertilizer usage for the plant can lead to a serious problems such as water and soil contamination. Water contamination affected by inefficient fertilizer usage once had happened in North China where the Nitrogen concentration in the water exceed the safety limit of drinking water (50 mg/l). Inefficient usage of fertilizer also lead to another problem that is much higher soild acidity whereas the recommended acidity is between 6.0-7.0, this can also affect failure in crop harvesting. Fertilizer controlling can be solved with the use of RTDV (Root Targeted Delivery Vehicle) that can control the output rate of the fertilizer so that the absorption rate by the crops will be constant. RTDV is made with the use of additive manufacturing or 3D printing. PLA material is chosen to produce RTDV because of its biodegradable and environment friendly feature. RTDV can also prevent run off of fertilizer caused by excessive watering.

Keywords: Design, Root Targeted Delivery Vehicle, Environment Friendly, Additive Manufacturing, Biodegradable