

## UbiGro -- Crop Boosting Smart Facades for Zero Net Electricity Greenhouses

Food is vital to every being on the planet, and a subject of great importance with a growing, global population in a time of climate crisis. Indeed, for the future of agriculture, we must think critically about how we are using every resource.

We have already developed an application for quantum dot nanotechnology that optimizes the spectrum for growing crops, and have proven to boost crop yields up to 21%. Our luminescent greenhouse film, which we've dubbed "UbiGro" is so far only a retrofit solution that is installed inside of greenhouses. UbiGro on its own is better than existing lighting solutions because it does not filter out color (all luminescent greenhouse films besides UbiGro rely on dyes instead of our patented quantum dot nanotechnology), reduce photosynthetically active radiation (PAR), or require electricity or wires in order to function!

We believe UbiGro can be applied in a smart greenhouse facade. We hope to integrate our yield-boosting UbiGro formula into a luminescent solar concentrator with solar cells coupled to its surface or perimeter.

We hope to successfully integrate UbiGro into a LSC that generates enough electricity to power a few sensors common in greenhouses today. With UbiGro luminescent solar concentrators installed directly into a greenhouse's exterior facade, we will be able to help growers cut their reliance on fossil fuels for heating and electricity while enabling zero net electricity growing facilities around the world. We believe that UbiGro is a key ingredient in the future of food security for a growing population and food production in a time of climate crisis.

Our team is ready for our solution to come to life. However, we lack the facilities required to laminate our UbiGro film into polycarbonate or glass luminescent solar concentrators at a large scale, and funding to create custom PVs ideal for the perimeter of our LSCs. We also hope to connect with those with expertise in the building-integrated electronics (smart buildings) field so to apply smart technology adequately to greenhouses specifically.

Today we stand at the cusp of uniting these technologies into one, with the goal of creating a microgrid within greenhouses that power smart devices such as sensors, monitors, and ventilation systems.

