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Luminescent Solar Concentrators in the Algal Industry KATIE HELLIER, CARLEY CORRADO, SUE CARTER, University of California Santa Cruz - Carter Lab, ANGELA DETWEILER, LESLIE BEBOUT, NASA Ames Research Center — Today's industry for renewable energy sources and highly efficient energy management systems is rapidly increasing. Development of increased efficiency Luminescent Solar Concentrators (LSCs) has brought about new applications for commercial interests, including greenhouses for agricultural crops. This project is taking first steps to explore the potential of LSCs to enhance production and reduce costs for algae and cyanobacteria used in biofuels and nutraceuticals. This pilot phase uses LSC filtered light for algal growth trials in greenhouses and laboratory experiments, creating specific wavelength combinations to determine effects of discrete solar light regimes on algal growth and the reduction of heating and water loss in the system. Enhancing the optimal spectra for specific algae will not only increase production, but has the potential to lessen contamination of large scale production due to competition from other algae and bacteria. Providing LSC filtered light will reduce evaporation and heating in regions with limited water supply, while the increased energy output from photovoltaic cells will reduce costs of heating and mixing cultures, thus creating a more efficient and cost effective production system.

Kaitlin Hellier
University of California Santa Cruz - Carter Lab

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