Controlled Environment Systems Research Facility
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2011 Station Report to the NCERA-101 Committee

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1. Impact Nugget:
   - File a patent for rapid production of plants for green roof installation and erosion control.
   - Developed a green roof research website (http://www.ces.uoguelph.ca/greenroof/)
   - Aqueous ozone can be applied directly to plants (tomato) in drip irrigation systems
   - Evidence to suggest that liverwort control can be achieved using aqueous ozone in irrigation solution

2. New Facilities and Equipment.
   Development and installation of a prototype multispectral LED array designed for photosynthesis research in our sealed environment chambers. Six chambers will be equipped with these systems before the end of the year. The LED arrays are capable of providing a full spectrum at 2000 \( \mu\text{mol m}^{-2}\text{s}^{-1} \) over a 0.5 m\(^2\) area from a distance of 60cm. Individual wavelengths are fully addressable and dimmable and should provide up to 1000 \( \mu\text{mol m}^{-2}\text{s}^{-1} \) over the same 0.5 m\(^2\) growing area.

3. Unique Plant Responses

4. Accomplishment Summaries.
   - While conducting research on green roof plant production and maintenance, we have transferred some of our research results directly to our industry partners. By using our results on growing substrates, fertilization, our green roof plant producers have improved both their plant production speed and quality.

5. Impact Statements

6. Published Written Works.
Scientific Publications


7. Scientific and Outreach Oral Presentations. Include workshops, colloquia, conferences, symposia, and industry meetings in which you presented and/or organized.


8. Other relevant accomplishments and activities.


MSc Thesis Defences:

Dombrowski, MP. 2012 Growing substrates comprised of composted materials and reduced peat moss for production of greenhouse potted gerbera (Gerbera jamesonii).

Lomas, N. 2012. Comparison and selection of saprophagous diptera species for poultry manure conversion.