

## Sustainability Indicators for Selected Greenhouse Production Facilities in North America



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### *Abstract*

Greenhouse crop production is increasing as consumer demand increases, specifically in areas where the natural climate is more hostile to the desired production. However, no assessment of the sustainability of existing facilities currently exists, and there is sufficient consumer demand for assessing this from seed to shelf. The purpose of this study was to assess the sustainability of current systems in North America. This was accomplished through the development of various sustainability or S-score equations. This report focused on greenhouse safety practices at observed facilities and specific factors affecting the subsequent S-scores. Approximately 20 hoophouse and greenhouse facilities in both the public and private sector volunteered to provide data for these equations. Each facility was assigned a region: Florida, Northeast, Midwest, Northwest and Southwest. Key parameters were organized according to four general categories based on economic, environmental, social and safety aspects.

Each category was assigned a weight. Each weight was then incorporated into the master sustainability equation as coefficients. The final value was an “S-score” for each facility. The facilities ranged in size from seasonal, single-house hoophouse to large facilities ranking in the top 10 for indoor agricultural production. Additionally, facilities with either or both vegetable and ornamental production participated in this study. Overall, greenhouse facilities were found to have a range of S-scores.

### *Biography*

Jaime has served as the chair of the Renewable Energy Committee for the American Society of Agricultural and Biological Engineers and the Farm and Family Leisure Committee for the International Society of Agricultural Health and Safety. He has previously held positions at the United Nation Environment Program (UNEP) where he assisted in the

development of the publication “Environmental Indicator for North America” and attended Congressional hearings on behalf of UNEP. He also interned with the United States Department of Agriculture and has worked with the Buccleuch Rangers in Scotland. He also was a member of the highly acclaimed University

of Minnesota Solar Vehicle Project. Jaime’s work at the University of Illinois has involved the development of health and safety procedures for breweries, wineries, grain bins and greenhouses.