

## Organic Fertilization and its Effect on Development of Sweet Pepper Transplants.

V. Gravel<sup>1,2\*</sup>, M. Dorais<sup>1</sup> and C. Ménard<sup>1</sup>

1. Agriculture and Agri-Food Canada, Centre de recherche en horticulture, Université Laval, Québec, QC.

2. Département des sols et de génie agroalimentaire, Université Laval, QC.

\* [valerie.gravel@agr.gc.ca](mailto:valerie.gravel@agr.gc.ca)

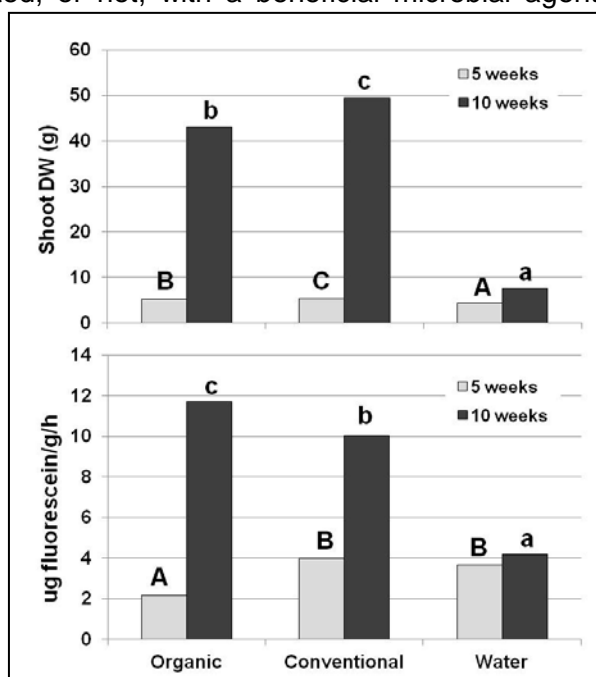
### Background:

Organically-grown greenhouse sweet pepper crops, as is the case with most year-round greenhouse crops, rely on pre-grown transplants. Production of adequately balanced (source and sink strength potential) healthy organic sweet pepper transplants is a challenge, and is often related to early and total harvested yields.

### Project Overview:

Shrimp meal (0, 400, 800 or 1600 mL m<sup>-3</sup>) and Kelp meal (0 or 50 mL m<sup>-3</sup>) were incorporated in the growing medium. Transplants were inoculated, or not, with a beneficial microbial agent, *Trichoderma harzianum* Rifai strain KRL-AG2 (Rootshield®) and grown under greenhouse conditions. After transplanting, sweet pepper plants received water, conventional synthetic fertilization or liquid organic fertilization.

Medium respiration (CO<sub>2</sub> efflux) and FDA hydrolysis analysis showed a higher microbial activity in the liquid organic fertilizer treatment. Transplants that received liquid organic fertilizer had greater development compared to transplants that only received water in addition to the initial solid fertilizer. However, organic amendment mineralization did not completely fulfill transplant nutrient requirement compared to conventional transplants. Inoculating a beneficial agent to the organic growing medium increased its biological activity but had no effect on seedling growth.



### Conclusions:

Use of solid organic fertilization (1600 mL m<sup>-3</sup> of shrimp meal with 50 mL m<sup>-3</sup> of kelp meal) and of organic liquid fertilization should be used, in combination with inoculation with *T. harzianum*, to obtain high quality organic sweet pepper transplants.

**Acknowledgments:** This research was funded through Canada's Organic Science Cluster, which in turn was funded by the Canadian Agri-Science Clusters Initiative of Agriculture and Agri-Food Canada's Growing Forward Policy Framework and its industry partners.