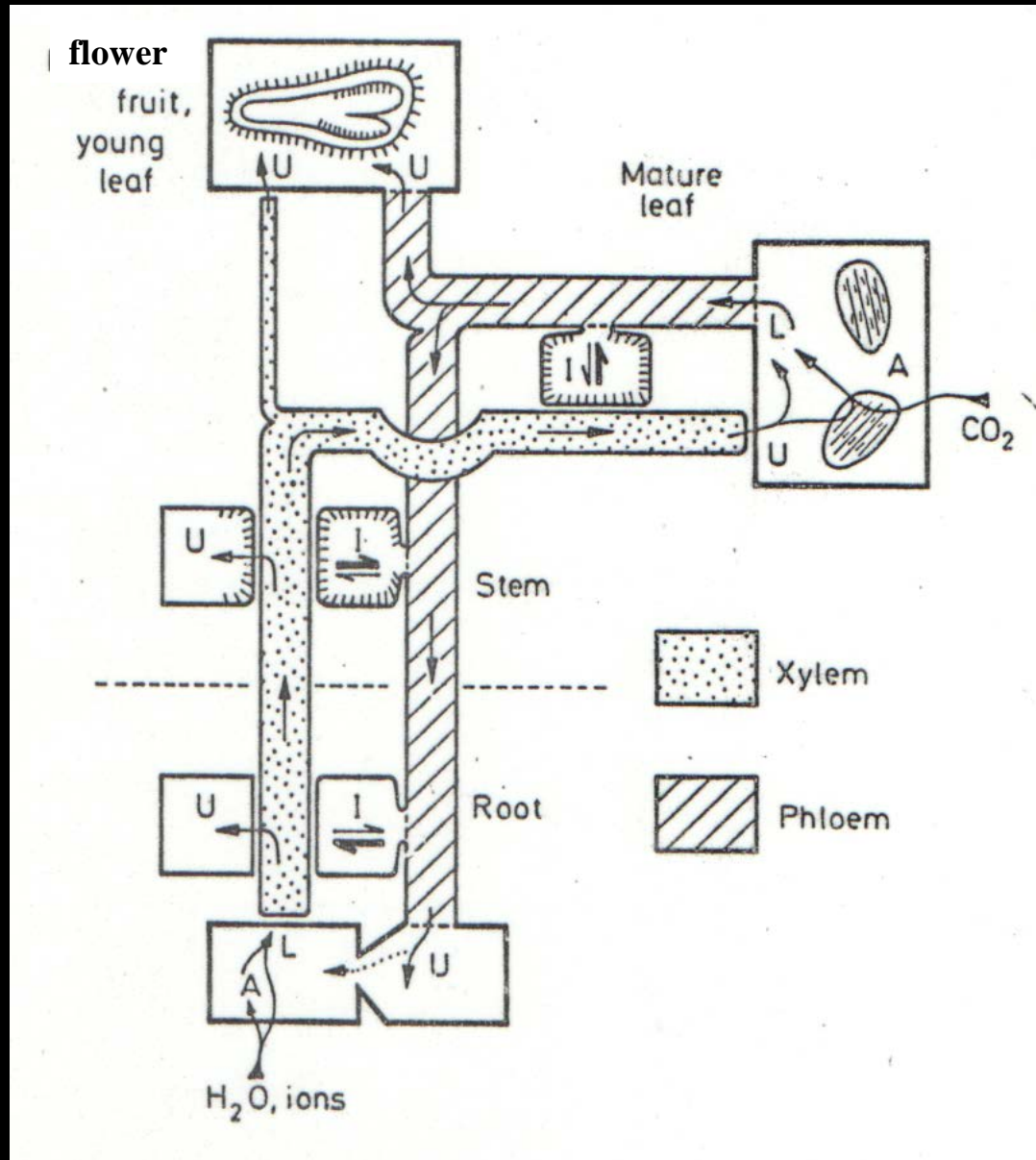


**Optimizing Supply and Timing of
Nitrogen Application for Sub-irrigated
Potted Chrysanthemums**

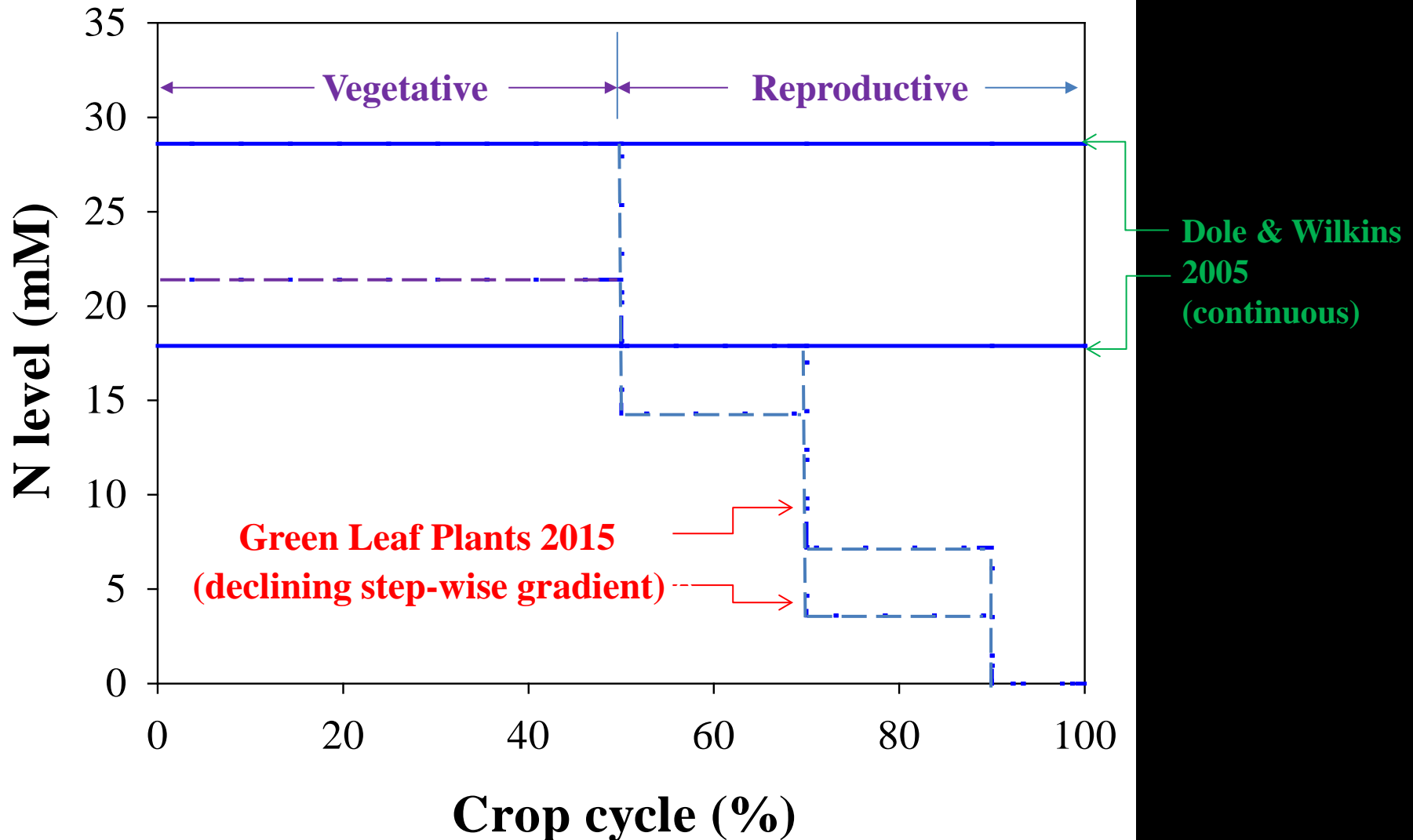
by

Barry J Shelp

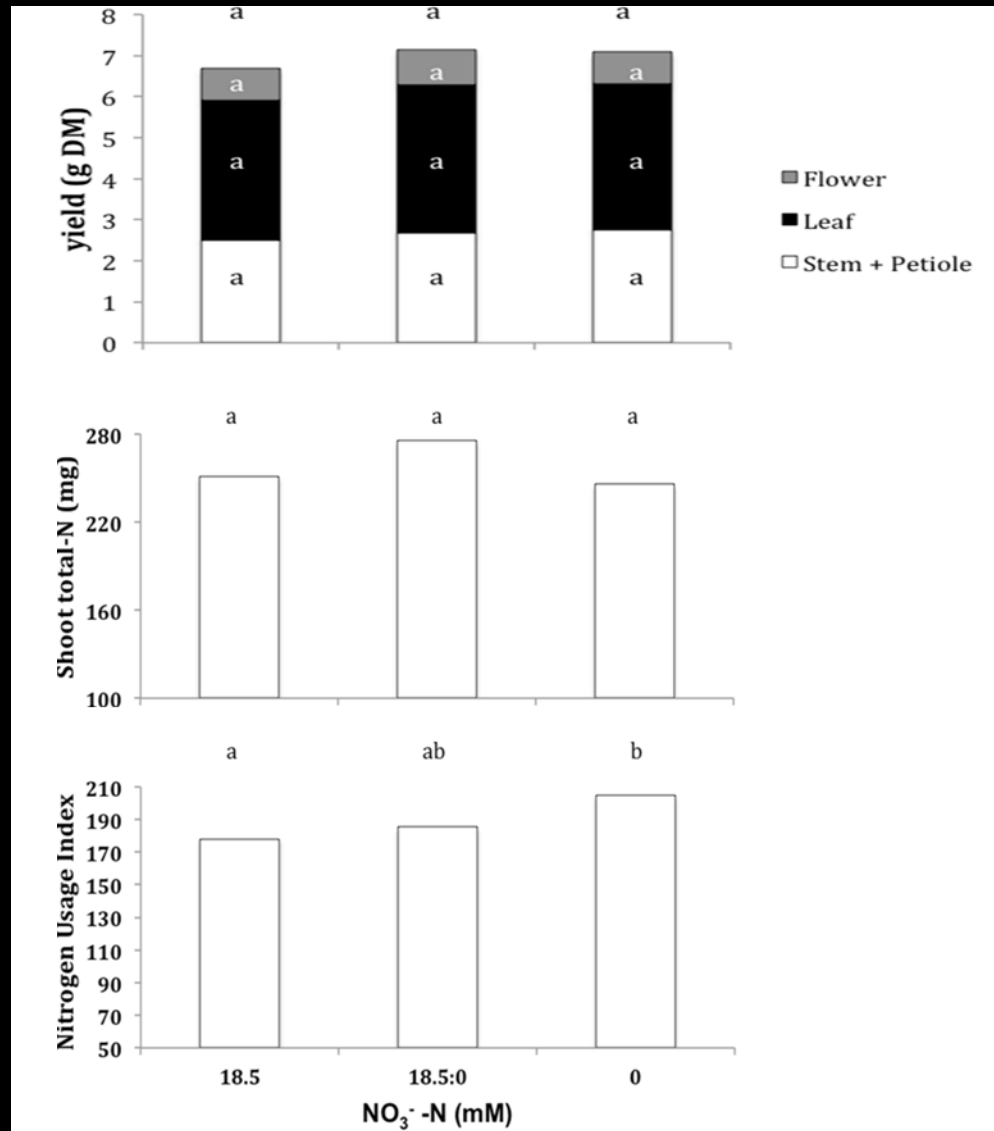
Basic Elements of the Plant Circulatory System



Commercial Fertilizer-N Guidelines for Greenhouse-grown Potted Chrysanthemums



'Yellow Favour' Remobilized Shoot N More Efficiently with Decreasing N Supply



N Usage Index = shoot DM / shoot N content

Visual Symptoms of N Deficiency Were Absent

'Olympia'



18.5

12.3

9.25

N supply (mM)

'Covington'



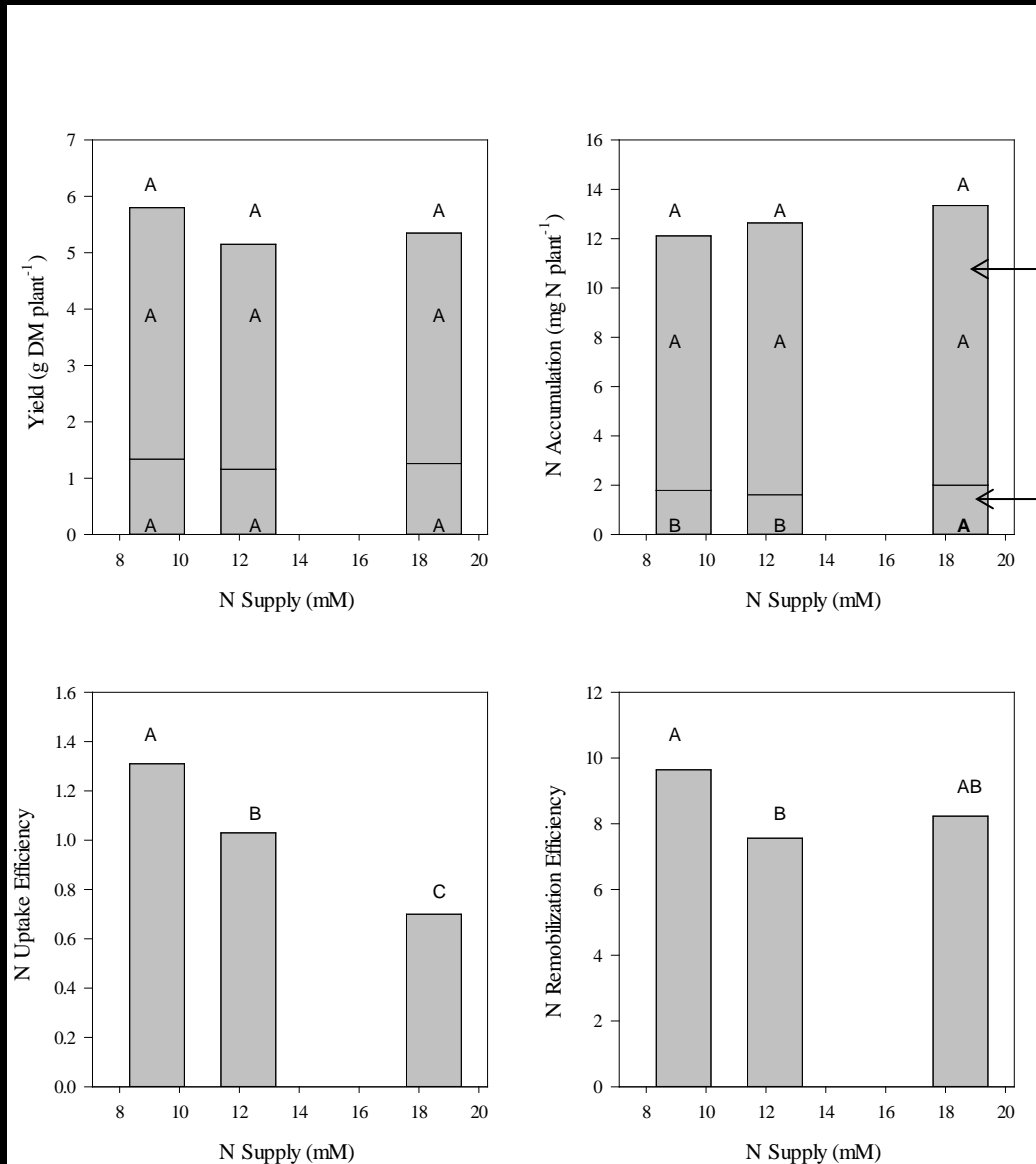
18.5

12.3

9.25

N supply (mM)

'Olympia' Absorbed N More Efficiently with Decreasing N Supply



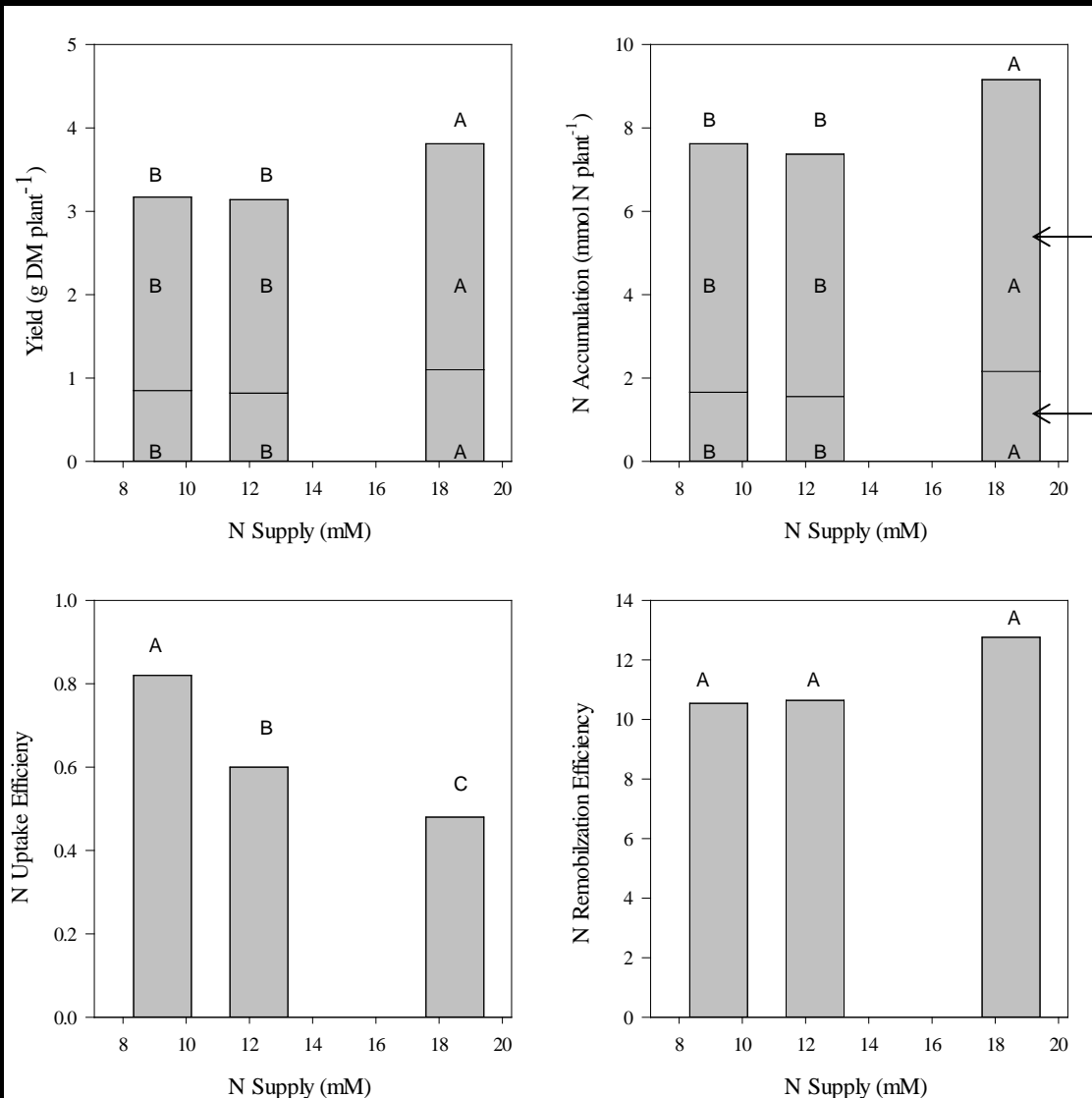
Remaining shoot

Flowers

N uptake efficiency = shoot N content/N supply

N remobilization efficiency = flower DM/shoot N content

'Covington' Absorbed N More Efficiently with Decreasing N Supply



Remaining shoot

Flowers

N uptake efficiency = shoot N content/N supply

N remobilization efficiency = flower DM/shoot N content

Summary

- **Judicious use of N (i.e., 25%–50% of current commercial recommendations) can improve the efficiency of both N uptake & remobilization processes, with only slight effects, if any, on plant & flower quality**
- **Commercial trials in Ontario floricultural operations are warranted to firmly establish the minimal N supply for year-round production of sub-irrigated potted chrysanthemums, which does not negatively influence crop use & postharvest quality**
- **Optimization of nutrient supply using strategies described here could result in less nutrient usage & cost & a smaller volume of less concentrated nutrient-rich feedwater for treatment & (or) approved discharge, if & when it is not recycled**

Acknowledgements

William N. MacDonald, M. James Tsujita, Theo J. Blom & Barry J. Shelp (2014) *Canadian Journal of Plant Science* 94: 643



- **Aldershot Greenhouses**

Acknowledgements

**Barry J Shelp, Irina Solntseva, William J. Sutton,
Geoffrey B. Lum & Christoph W. Kessel (2017)**
Canadian Journal of Plant Science **97**: in press



Thank You!

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