

Evaluation of Suståne 16-4-8 (180 day) A, B and C Controlled Release Fertilizers

Objectives:

1. Evaluate the effect of Suståne 16-4-8 A, B and C on plant performance (growth and quality measurements) of woody shrub and herbaceous perennial species compared to the grower's standard fertilizer (Polyon), Diffusion and Plantacote.

Material and Methods:

Plant material

(1) *Rudbeckia* (*Rudbeckia fulgida* 'Goldsturm'), (2) Yarrow (*Achillea* 'paprika'), (3) Bee Balm (*Monarda* 'Grand Marshall'), (4) Ninebark (*Physocarpus opulifolius* 'Center Glow'), (5) Hydrangea (*Hydrangea macrophylla* 'Endless Summer'), (6) Amur Maple (*Acer ginnala*)

Potting Substrate – 4 pine bark and wood chips: 3 peat: 2 composted plant material: 1 sand;
Hydrangea potted with 4 wood chips: 4 peat: 2 composted plant material with 16 lbs aluminum sulfate per cubic yard.

Irrigation – overhead supplied in accordance with Bachman's normal production requirements.

Fertilizer Method of Application and Rate – All treatments were incorporated at 1.8 pounds of N per cubic yard.

Treatments

1. Suståne 16-4-8 (180 day) A
2. Suståne 16-4-8 (180 day) B
3. Suståne 16-4-8 (180 day) C
4. Diffusion 19-4-8 (8 mo.)
5. Plantacote 19-5-10+minors (8-9 mo.)
6. Polyon 18-2-9 (8-9 mo.)

Data Collection – Plant Quality rating taken at 35, 65, and 116 days after application/planting (DAA) Shoot fresh weight taken at 116 DAA on *Rudbeckia*, Yarrow, Bee Balm and Hydrangea. Canopy growth index taken at 166 DAA on Amur Maple and Ninebark.

Time Frame – May 27, 2010 – September 13, 2010

Miscellaneous - Containers will be maintained weed free through hand weeding. Pest and disease management performed as needed please report details of any action taken.

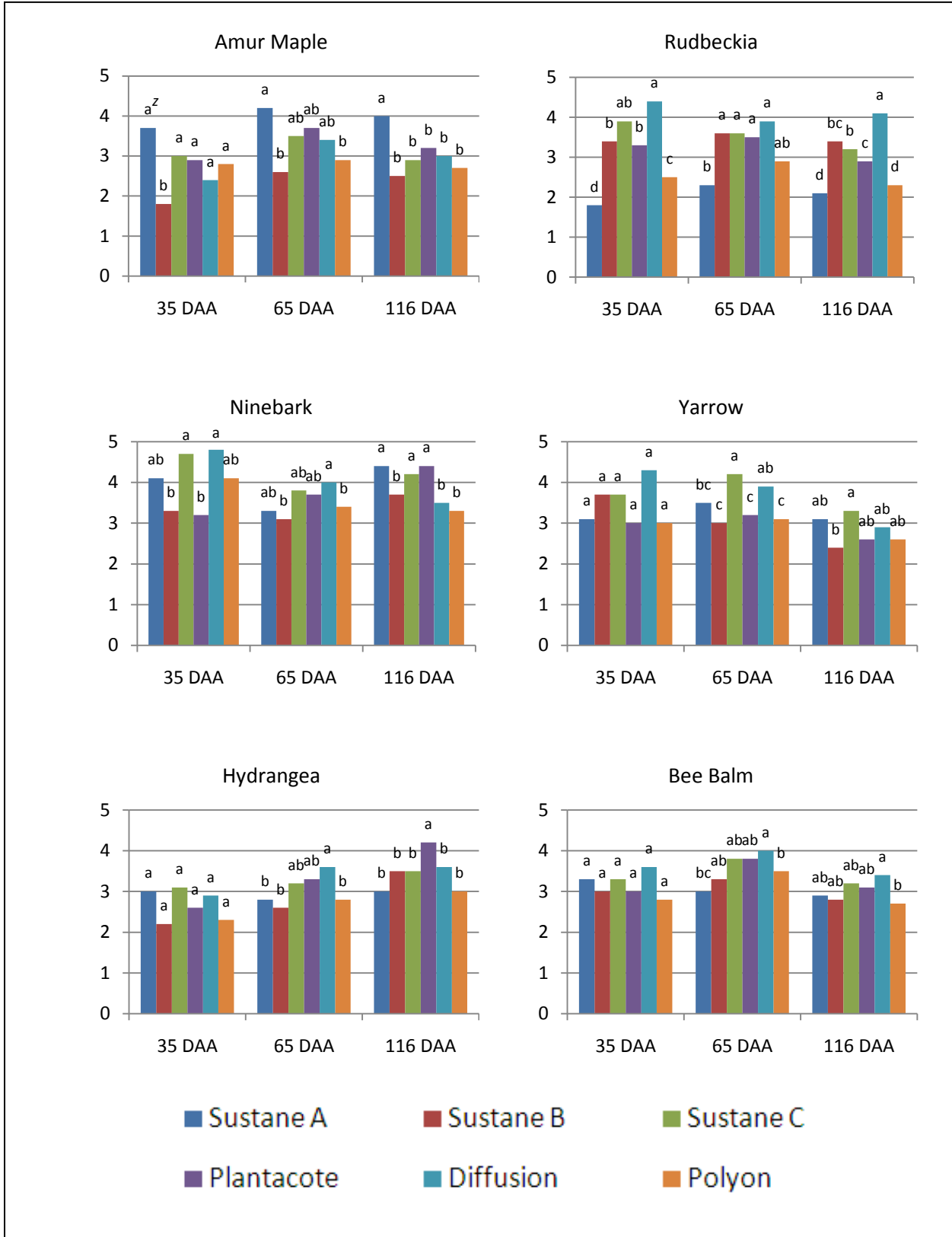
Study Design – Treatments arranged in rows with one treatment per row with 10 replications per row.

Study Locations – Bailey Nursery, Cottage Grove, MN, Lot #4

Results:

All data collected for this trial are presented in figures 1, 2 and 3. Of the three Sustane formulae tested, Sustane A performed the best across all species tested. Both Sustane A and grower's standard fertilizer (Ployon) provided consistent supply of nutrients over the growing season. However, for plant quality rating at 116 DAA, Sustane A performed better (2 species) than or equal (4 species) to Ployon (fig.1). Both growth index (fig. 2) and shoot fresh weight (fig.3) was comparable for Sustane A and Ployon, with the exception of growth index of maple which was greater for plants fertilized with Sustane A(20.4 in.) compared to Ployon (15.6 in.) (fig. 2).

fig. 1. Mean^x quality rating^y taken at 35, 65, 166 days after application (DAA)

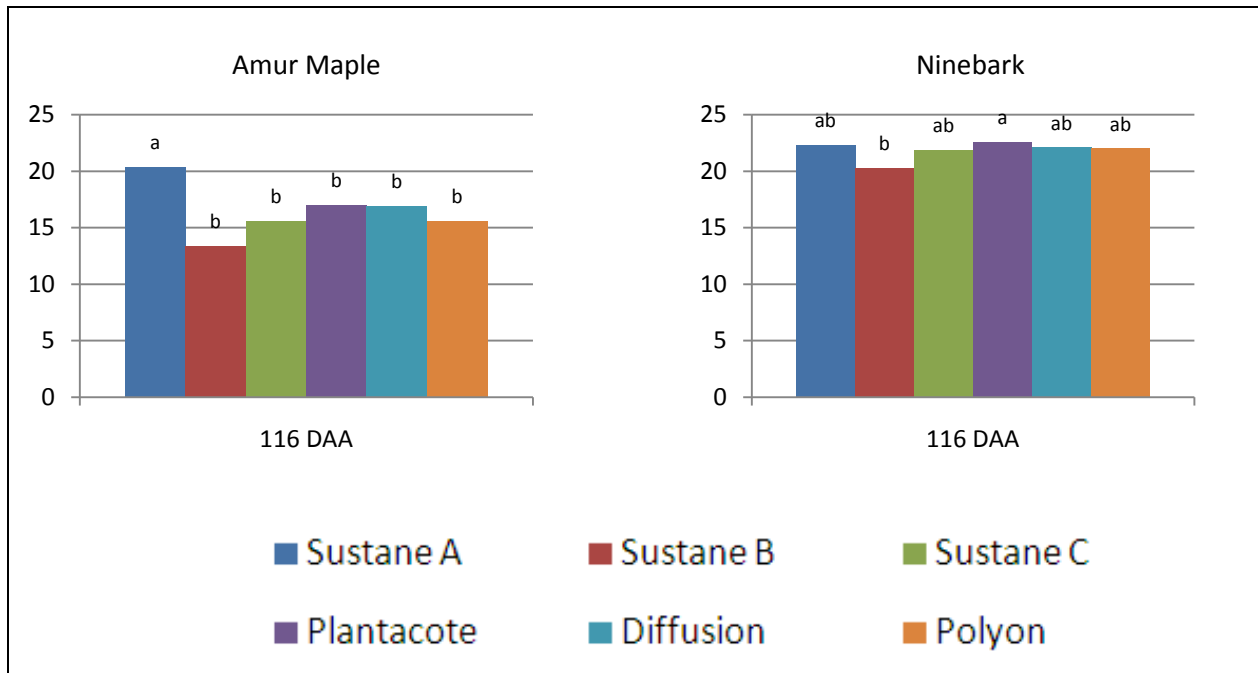


^x Mean value is based ratings of 2 observers (n=20) for 35 and 65 DAA and 4 observers (n=40) for 116 DAA

^y Plants rated on a scale of 1-5, 5=best

^z Means within a measurement date followed by the same letter indicate no significant difference, according to SNK ($\alpha=0.05$)

fig. 2. Mean^x growth index^y (in.) taken 166 days after application (DAA)

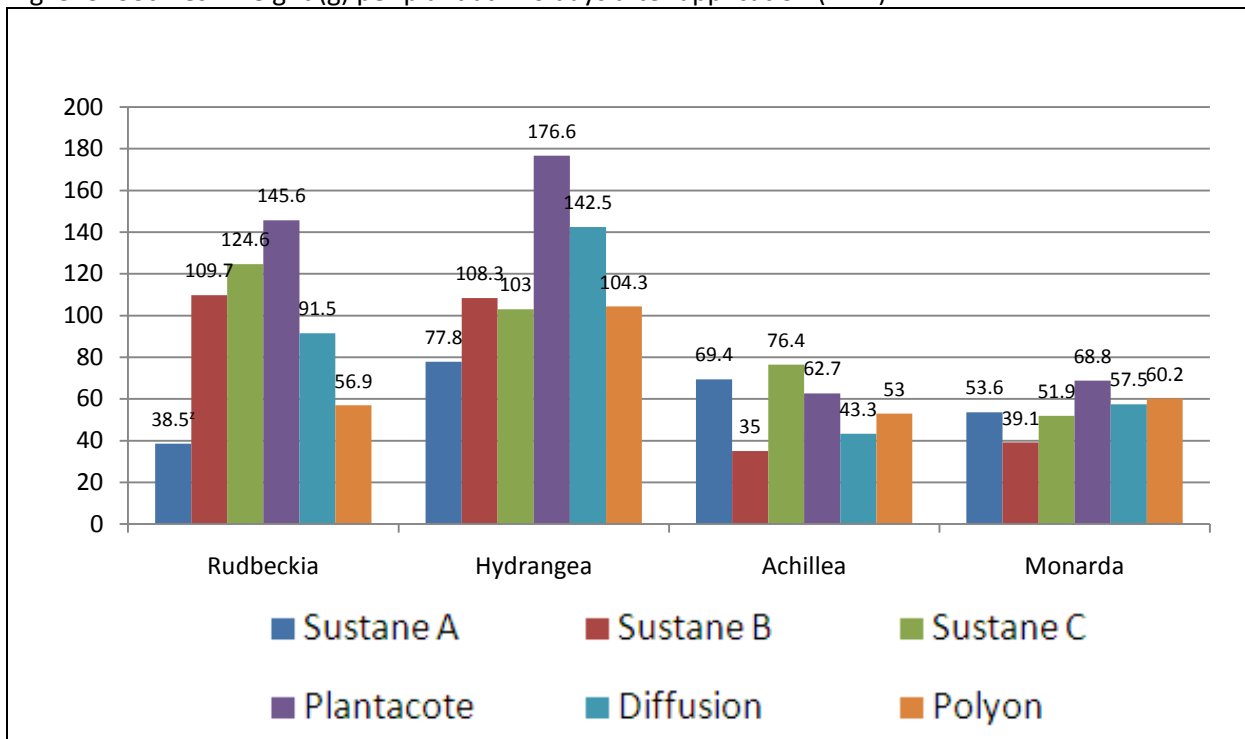


^x n=10

^y Growth index calculated as the sum of plant-width1, -width2 and height divided by 3

^z Means within a measurement date followed by the same letter indicate no significant difference, according to SNK ($\alpha=0.05$)

fig. 3. Shoot fresh weight (g) per plant at 116 days after application (DAA)



^z grams of shoot fresh weight per plant, a portion of each plant was harvested at uniform height above substrate surface to obtain values