November 2008

Optimizing Greenhouse Rice Production: Is the Use of Field Soil Required?

Robert Eddy
Purdue University, robeddy@purdue.edu

Daniel T. Hahn
Purdue University, dhahn@purdue.edu

Purdue Methods: Optimizing Greenhouse Rice Production

Is the use of field soil required?

No, in our study plants failed to thrive when grown in our clay loam mineral soil by all measures.

Augmenting the soil with Pro-mix, Profile or Turface at a 1:1 by volume ratio improved growth and tiller count, but did not produce as vigorous plants as some of the treatments that did not contain the field soil.

This is a significant outcome, as many research institutions grow rice in this root media to avoid chlorosis. Of course, the mineral soil varies by what is available locally, but there is no reason to believe the soil we used is not as conducive to growth as others, being pH balanced to 6.2 and capable of growing other grass crops in our university greenhouses. Changing this production component alone may optimize growth of greenhouse rice for many research projects.

Figure 1. Plants grown in a field soil (left) and in Profile calcined clay granules.

This document is based on materials originally posted to the Purdue University HLA Department Plant Growth Facility web site: http://www.hort.purdue.edu/hort/facilities/greenhouse/RiceMethod.shtml

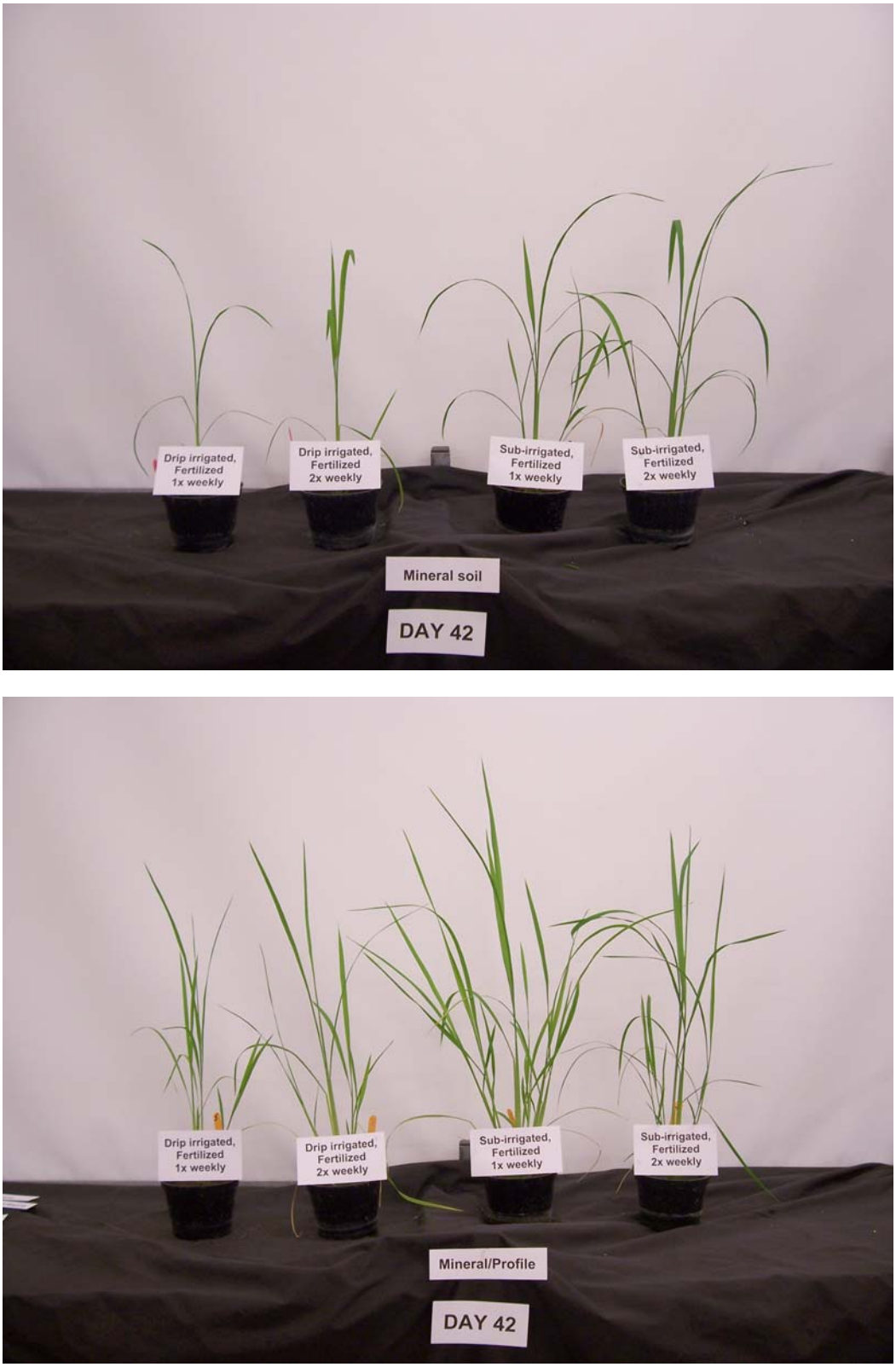

Figure 2. Rice plants grown under differing irrigation methods and fertilization schedules in field soil (top) and in the same field soil augmented with calcined clay granules at 1:1 by volume.