



Figure 5. Specific gravity of potato from N treatments at plant emergence and 6 to 8 in. growth stage.

season the potato crop accumulated an average of 3.2 t/A of dry biomass (**Figure 2**). The potato tissues (leaves, stems and tubers) accumulated 98 to 111 lb N/A of over the season (**Figure 3**). There was no difference in plant N accumulation from the emergence N application. At the 6 to 8 in. growth stage the addition of 100 lb/A as compared to 50 lb/A slightly increased plant N, without an increase in potato yield (**Figure 4**).

Yield

Total potato fresh yield ranged between 16.5 and 17 t/A with no difference in yield from the N fertilizer rates at either application stage. Potato specific gravity was affected by both

fertilizer applications, with higher values resulting from higher rates of fertilizer at both the emergence stage ($p = 0.0001$) and 6 to 8 in. growth stage ($p = 0.0001$) (**Figure 5**). Higher specific gravity of tubers is preferred as it indicates higher dry matter content of the potato which benefits the frying process.

Conclusion

In this study potato was supplied with total N rates ranging from 100 to 300 lb/A with treatments varying the levels of N at the emergence and 6 to 8 in. sidedress stages. These treatments were verified with soil N concentration tests reflecting the relative application rates applied.

Nitrogen added at the 6 to 8 in. stage only slightly affected plant N content; however this effect did not carry over into yield. Perhaps the most economically useful result of this study for growers is that there was little effect of the N treatments on Atlantic potato yield in dry years such as 2011 and 2012. This means that growers can save money by applying less N at sidedress without negatively impacting yield in dry years.

The results presented in this paper are part of the research program for BMPs for irrigation and fertilization of potatoes. Complementary studies are being carried out to evaluate the benefits of pre-plant N fertilization as well as irrigation management on potato production in northeast Florida. **BC**

The authors are with the University of Florida, Horticultural Sciences Department, Gainesville, FL; e-mail: lzota@ufl.edu.

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