

EFFECTS OF PRODUCERS' RISK PERCEPTIONS ON THE CHOICE OF NITROGEN APPLICATION RATES: A CASE STUDY OF FLORIDA CARROT PRODUCTION

Fei He¹, Tatiana Borisova¹, Kevin Athearn², Charles Barrett², Bob Hochmuth², and Damian Adams³

¹Food and Resource Economics Department, University of Florida, FL, USA

²North Florida Research & Education Center-Suwannee Valley, University of Florida, FL, USA

³School of Forest Resources and Conservation, University of Florida, FL, USA

A variety of factors influence the choice of fertilizer application rates in crop production. A key among these factors is the effect of the fertilizer rates on marketable yields and profits. However, given that the yields and profits cannot be predicted with certainty, producers' risk aversion ultimately drives the choice of the rate. This study reports on an economic analysis conducted to inform nutrient management decisions for carrot, an emerging crop for north-central Florida. *Objectives:* (1) to identify the most economically preferred nutrient application rates; (2) to examine the changes in carrot net returns given alternative nitrogen application rates; and (3) to explore the differences in the ranking of the net returns given alternative risk perceptions of carrot producers. *Data and Method:* using data from an on-going carrot field experiment, profitability and risks are examined given alternative nitrogen application rates. The distributions of net returns are simulated based on the historical prices of nitrogen fertilizer and cello and jumbo carrot while accounting for the difference between marketable and total yields. The analysis is completed using Simetar Add-In for Excel. *Results:* Alternative ranking of the net return distributions are developed assuming various producers' risk aversion levels. *Next steps:* This study is a part of a multi-institutional and multi-disciplinary project "Agricultural Water Security Through Sustainable Use of the Floridan Aquifer" (FACETS). The project focuses on North Florida and Southern Georgia and aims at ensuring the economic sustainability of agriculture while protecting water resources in the Upper Floridan Aquifer. As a part of the project, economic and environmental implications of various carrot management systems will be examined.