



—Scientific Note—

## A Regional Strategy for Confronting the Challenges of a Basin Management Action Plan (BMAP) in North Florida

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The Regional Specialized Agents (RSAs) within the Suwannee River Basin are charged with helping agricultural producers overcome challenges associated with an emerging Basin Management Action Plan (BMAP), while ensuring their operational sustainability.

In 2016, the Florida Legislature found that Florida's natural springs were threatened due to excessive withdrawal and increasing nutrient (nitrogen) levels. This information led to the passage of the Florida Springs and Aquifer Protection Act. This formal legislative action generated the development of a BMAP for portions of the Suwannee River Basin, as well as other areas in the state. The plan targets impaired waterbodies and surrounding ecosystems affected by the amount of nitrogen loading in certain springs. Due to the amount of cultivated, irrigated farmland acreage in the north Florida region, the Suwannee River BMAP will focus heavily on agriculture and will enable regulatory efforts of production practices that are not in compliance with the Best Management Practices (BMPs) known to achieve nutrient reductions. The RSAs determined that fewer agricultural water permits would be issued to farmers who were not BMP compliant, and no new permits will be issued to producers in areas identified with the most sensitive waterbodies nearby. Producers will be required to implement BMPs (that will be verified for compliance), or more strenuous regulatory action will occur by the governmental monitoring agency.

In order to help farmers develop sustainable goals and to manage this impending challenge, the RSAs initiated projects at the North Florida Research and Education Center, Suwannee Valley and farm locations throughout the region. These projects demonstrate optimal BMPs that will help growers meet their goals and comply with the standards set for reduced nitrogen usage in agricultural crop settings. These extension efforts showcase the 4Rs concept of Nutrient Stewardship. Using the 4Rs approach as a consistent theme, producers are learning how to apply nutrients using the right source of fertilizer, at the right rate, at the right timing of development and in the right place for the crop. An example of grower adoption took place during a 2018 demonstration, when a large-scale corn producer utilized a fertilizer side-dressing implement to incorporate nitrogen directly by the plant row, instead of broadcasting the nutrient overhead through pivot irrigation. As a result of this new fertilizer application method implemented, on 4000 acres of grain corn, the producer reduced the usual amount of nitrogen applied by 50 lb/acre. The total reduction of nitrogen fertilizer being applied during the 2018 corn growing season equaled 200,000 pounds for the grower. Additionally, commercial producers have tried using a new source of fertilizer by testing controlled release fertilizer (CRF) sources instead of conventional liquid and dry bulk blends that were traditionally broadcast routinely. An added advantage of the CRF source is that farmers chose to side-dress the product due to its high cost, as this method is known to waste less fertilizer.

Efforts are underway to quantify the efficacy of controlled-release fertilizers in commercial production settings. Additionally, new ways to implement the 4Rs of Nutrient Stewardship are being identified and studied in a research setting, so that the practices can be demonstrated on farms within the Suwannee Valley area.

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