NC-WASHINGTON

Controlled Drainage

Mohamed Youssef, Chad Poole, Wayne Skaggs

SITE SUMMARY

The research was conducted at the North Carolina State University Tidewater Research Station site located near Plymouth, NC. The soil series was Portsmouth sandy loam (fine-loamy over sandy or sandy-skeletal, mixed, semiactive, thermic Typic Umbraquults), which is very poorly drained under natural conditions. There were 4 research plots with two replications for each drainage treatment:

Subsurface drainage lines were installed at a depth of 3.0 ft with lateral spacing of 75 ft in all plots. The center drain line of each plot was instrumented to continuously measure drain flow rate, while the outer drains served as guard lines to hydraulically isolate the area drained by center drain line from the influence of adjacent experimental plots.

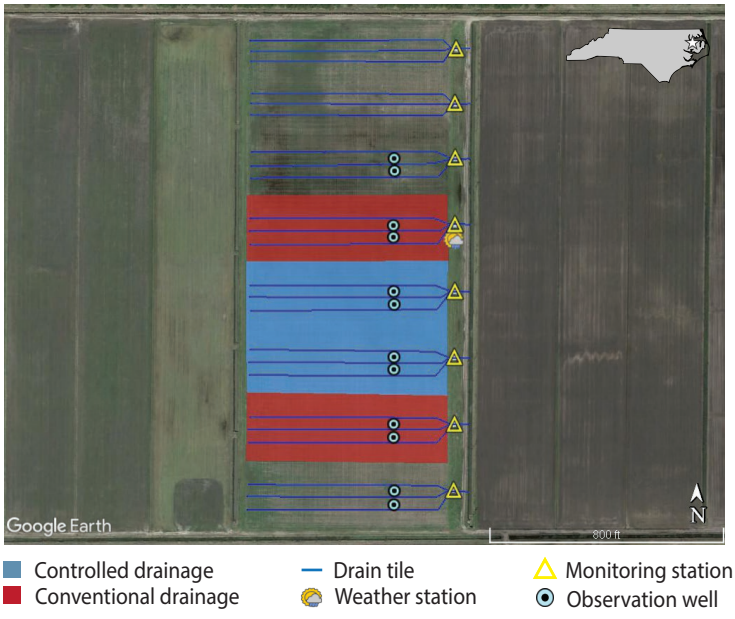

Figure 1. Plot map of water management treatments at the NC-Washington.

Box 1. Site info

CHARACTERISTICS

- Soil: Portsmouth sandy loam
- Rotation: Corn-Wheat-Soybean

WATER MANAGEMENT PRACTICES

- Controlled drainage (depth 3 feet, spacing 75 feet)
- Conventional drainage (depth 3 feet, spacing 75 feet)

MEASUREMENTS IN DATABASE

DRAINAGE SYSTEM

- Tile flow, nitrate-N concentration, and nitrate-N load (2007-2011)
- Water table depth (2007-2012)

CROP

- Crop yield (2007-2012)

WEATHER

-Precipitation, air temperature, relative humidity, solar radiation, wind speed, and evapotranspiration (2007-2012)

PUBLISHED WORKS FROM THE SITE

Poole, C.A., Skaggs, R.W., Chescheir, G.M., Youssef, M.A. & Crozier, C.R. Effects of drainage water management on crop yields in North Carolina. J. Soil Water Cons. 68(6), 429-437 ttps://doi.org/10.2489/jswc.68.6.429 (2013).

Poole, C.A., Skaggs, R.W., Youssef, M.A., Chescheir, G.M., & Crozier, C.R. Effect of drainage water management on nitrate nitrogen loss to tile drains in North Carolina. Trans. ASABE 61(1), 233-244 https://doi.org/10.13031/trans.12296 (2018).

Data Access

Data from this site are available through the USDA National Ag Library Ag Data Commons repository (https://doi.org/10.15482/USDA.ADC/1521092) or the interactive website at Iowa State University with visualization and querying capabilities (https://drainagedata.org).

ACKNOWLEDGEMENTS

TRANSFORMING DRAINAGE PROJECT

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USDA United States Department of Agriculture National Institute of Food and Agriculture

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