

2022 Pivot Bio PROVEN® 40 Mesocosm Field Study

Research Conducted by Iowa State University



Objective

The trial's objective was to understand the influence of PROVEN® 40 on nitrate leaching.

Location

Ames, IA

Trial Year

2022

Protocol

A steel box mesocosm system was used for this agronomic study to enable precise measurement of nitrate leaching and nitrous oxide emissions. A mesocosm is a system that examines the natural environment under controlled conditions. Each box contains an undisturbed soil core from either Clarion or Webster soil types. All water that moves downward through each box is collected and tested for nitrates and other nutrients.

36 replicated mesocosms, or soil blocks, were used to test the following treatments:

- Nontreated check (control)
- PROVEN® 40

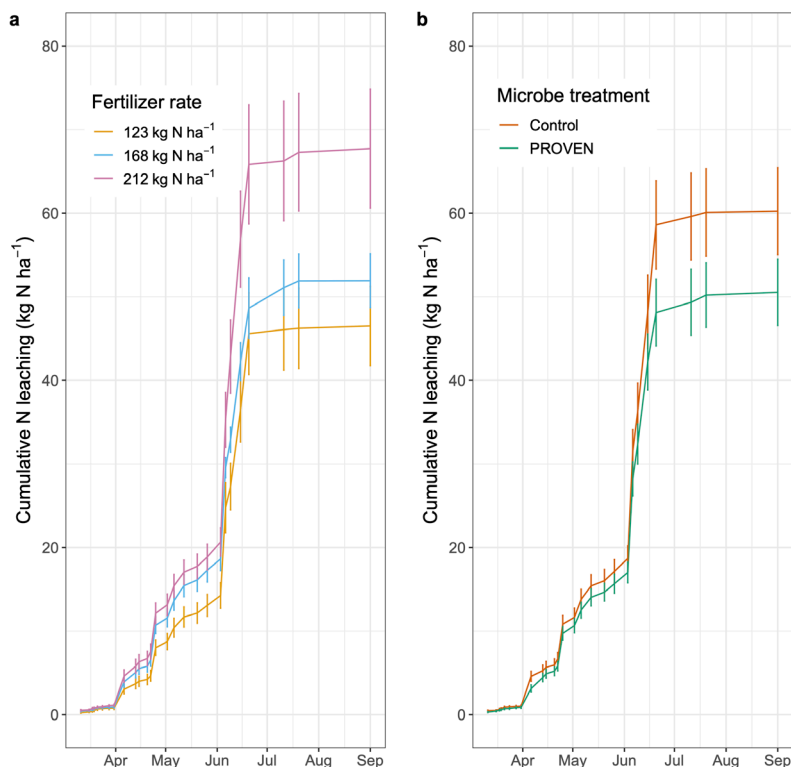
Across three N rates:

- 110, 150, 190 lbs. N/Acre.



Image of one of the 36 mesocosms from this trial at Iowa State University, near Ames, IA

PROVEN® 40 treated corn plants decreased nitrate leaching compared to the nontreated check.



Nitrate Leaching Assessment

As expected, nitrate levels varied by nitrogen rate (*Figure a*). Detecting the N-rate driven nitrate differences also validated the effectiveness of the steel box mesocosm system.

Across all nitrogen rates, when treated with PROVEN® 40, mean nitrate leaching was **10 kg N ha(-1)** less than the nontreated check (control) (*Figure b*).

