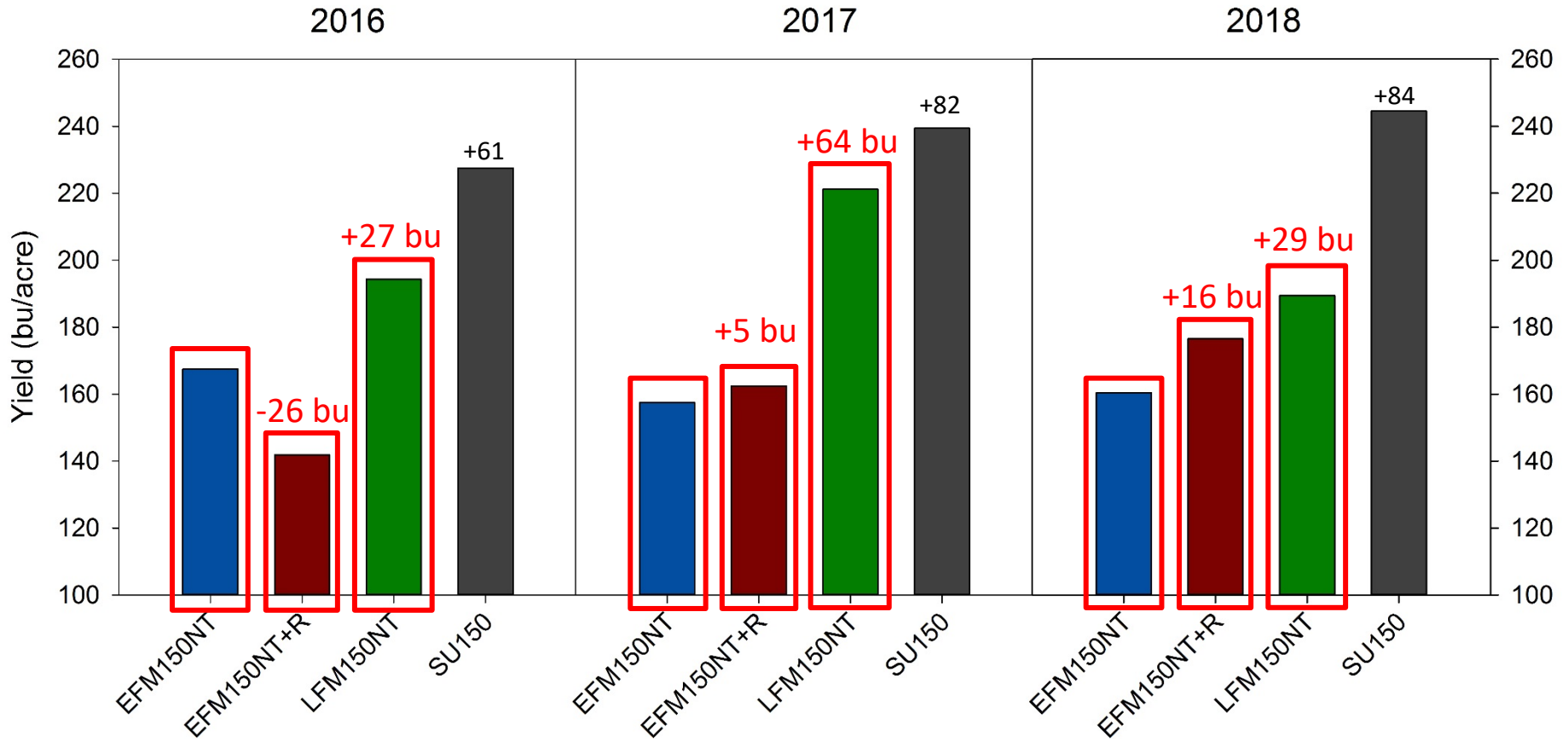


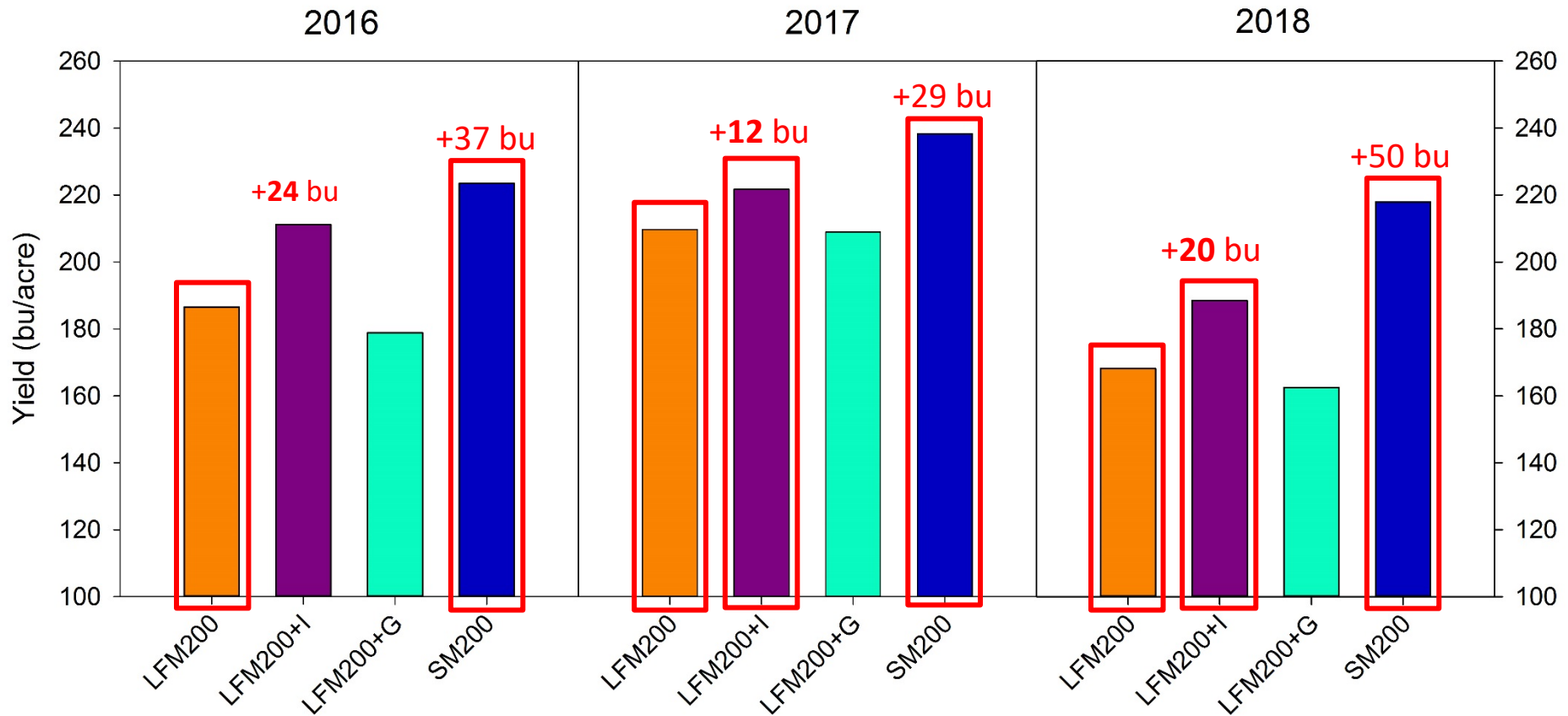
Corn phase yields



Abbreviations: EFM = Early Fall Manure; NT = No-Till; T = Tillage; R = Rye; LFM = Late Fall Manure; SU = Spring UAN

3-year averages: Cover Crop Rye **+10.5*** bu advantage (* from 2017 and 2018. The 2016 data, rye killed too late against corn emergence.) Late Fall Manure vs. early shows an average of **+40** bu/acre. Spring N vs Early Fall **+75** bu/acre.

Continuous corn yields

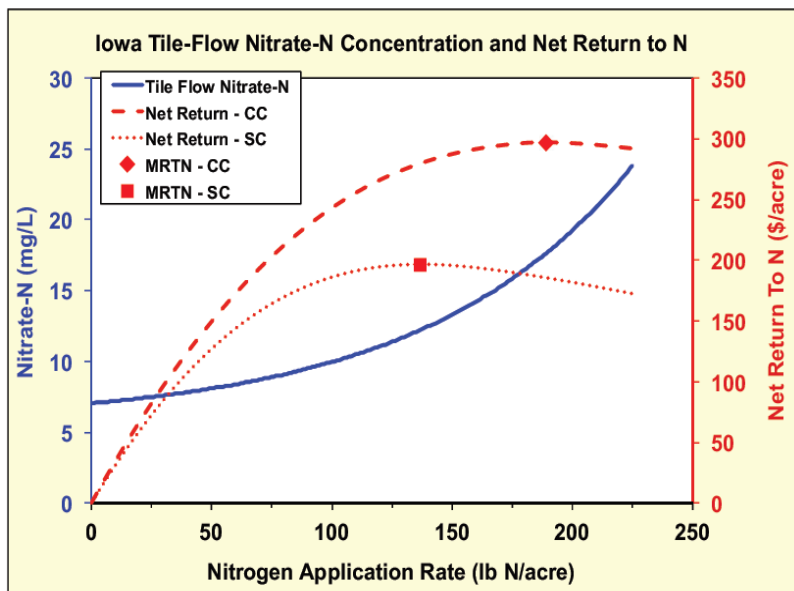


Abbreviations: LFM = Late Fall Manure; + I = Instinct; G = Gypsum; SM = Spring Manure

3-year averages: Late Fall Manure with Instinct stabilizer vs. without shows an average of +18.7 bu/acre.
Spring Manure vs even Late Fall still +38.7 bu/acre.

Known factors on the Science of Nitrogen:

- ❑ Bacteria in the soil naturally convert stable NH_4^+ form to NO_3^- (nitrate) which is unstable.
- ❑ Cooler soil temps slow bacterial activity and associated N conversion and loss.
- ❑ USDA approved Nitrapyrin (Instinct II, N-Serve) slow Nitrosomonas bacteria activity.
- ❑ Applying N at **more than soil capacity** only hastens losses (John Sawyer chart).
- ❑ N applied or stabilized to release closer to crop uptake is most efficient.
- ❑ Newer genetics requires nearly 1/3 of its total N after tasslel.
- ❑ ISU's 3-year manure data supports all of these nitrogen facts.



Sawyer, J.E. April 2017. ISU Extension publication CROP 3073

