

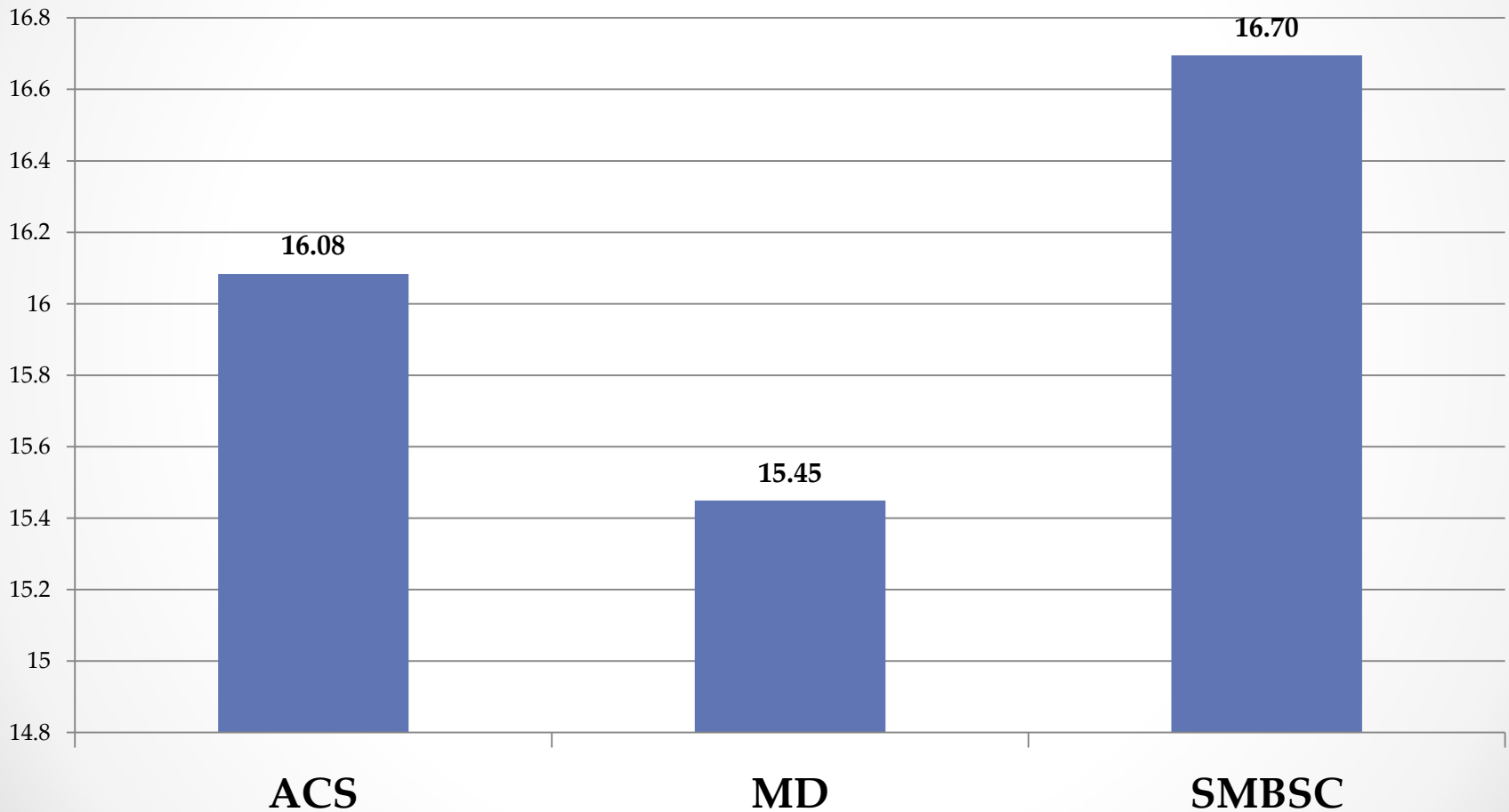
SMBSC and Sugar Content – The Reality

2017 SMBSC Grower Production Seminar
Todd Geselius

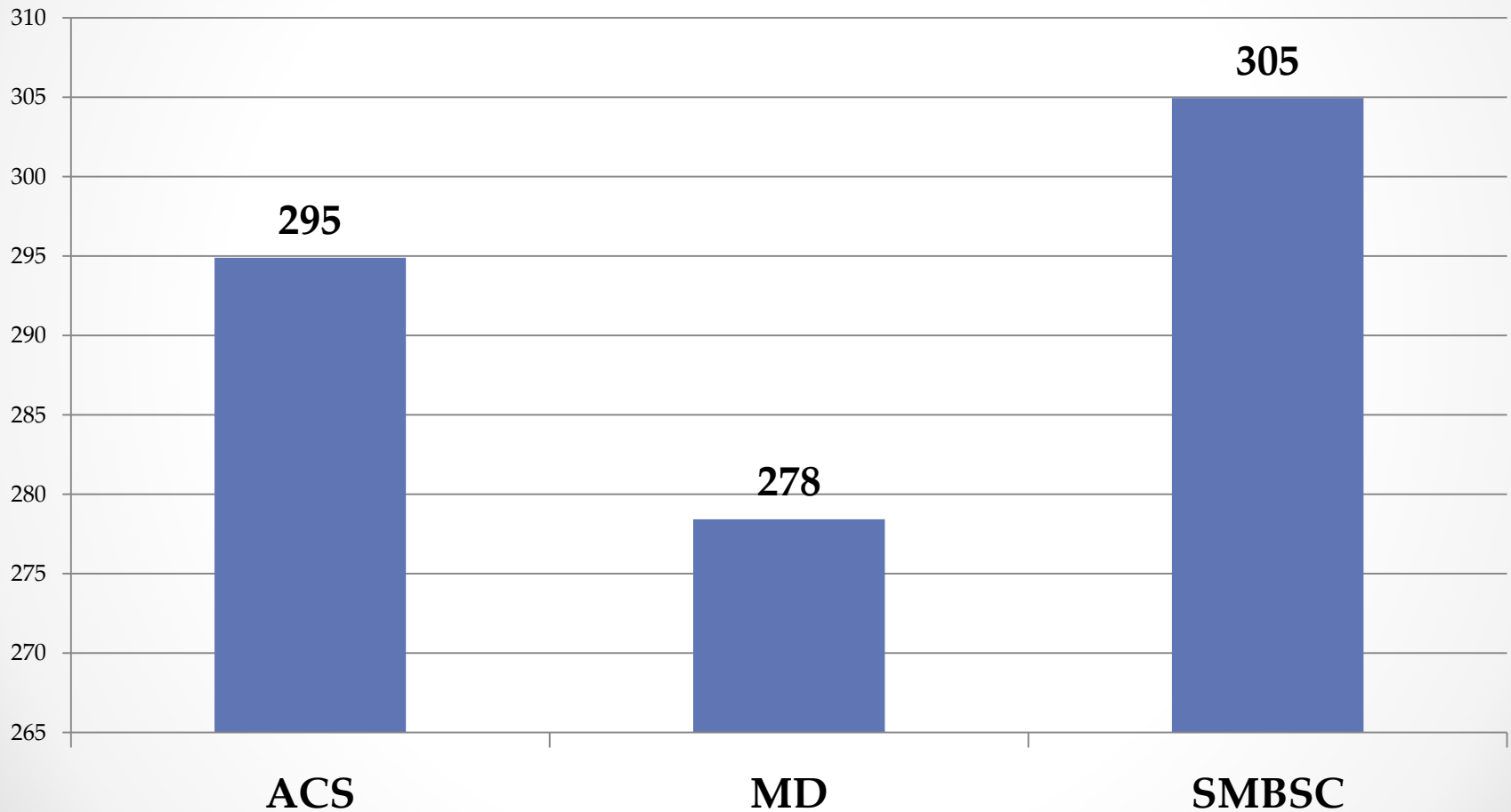
SMBSC Varieties

- Do SMBSC varieties have the genetic potential to produce sugar content similar to those planted at Minn-Dak and American Crystal Sugar?
 - Experiment coordinated by Dr. Mohamed Kahn
 - 2 varieties from SMBSC
 - 2 varieties from ACS
 - 1 variety from Minn-Dak
 - Planted all varieties in 6 locations
 - SMBSC - Minn-Dak - Hickson, ND - Prosper, ND – Crookston, MN – St. Thomas, ND
 - Study conducted in 2015 and 2016

Average % Sugar of Five Varieties (2 ACS, 2 SMBSC, 1 MD) Over Twelve Site Years in ND and MN (2015 and 2016, 6 Locations Each Year)



**Average EST of Five Varieties (2 ACS, 2 SMBSC, 1 MD)
Over Twelve Site Years in ND and MN (2015 and 2016, 6
Locations Each Year)**



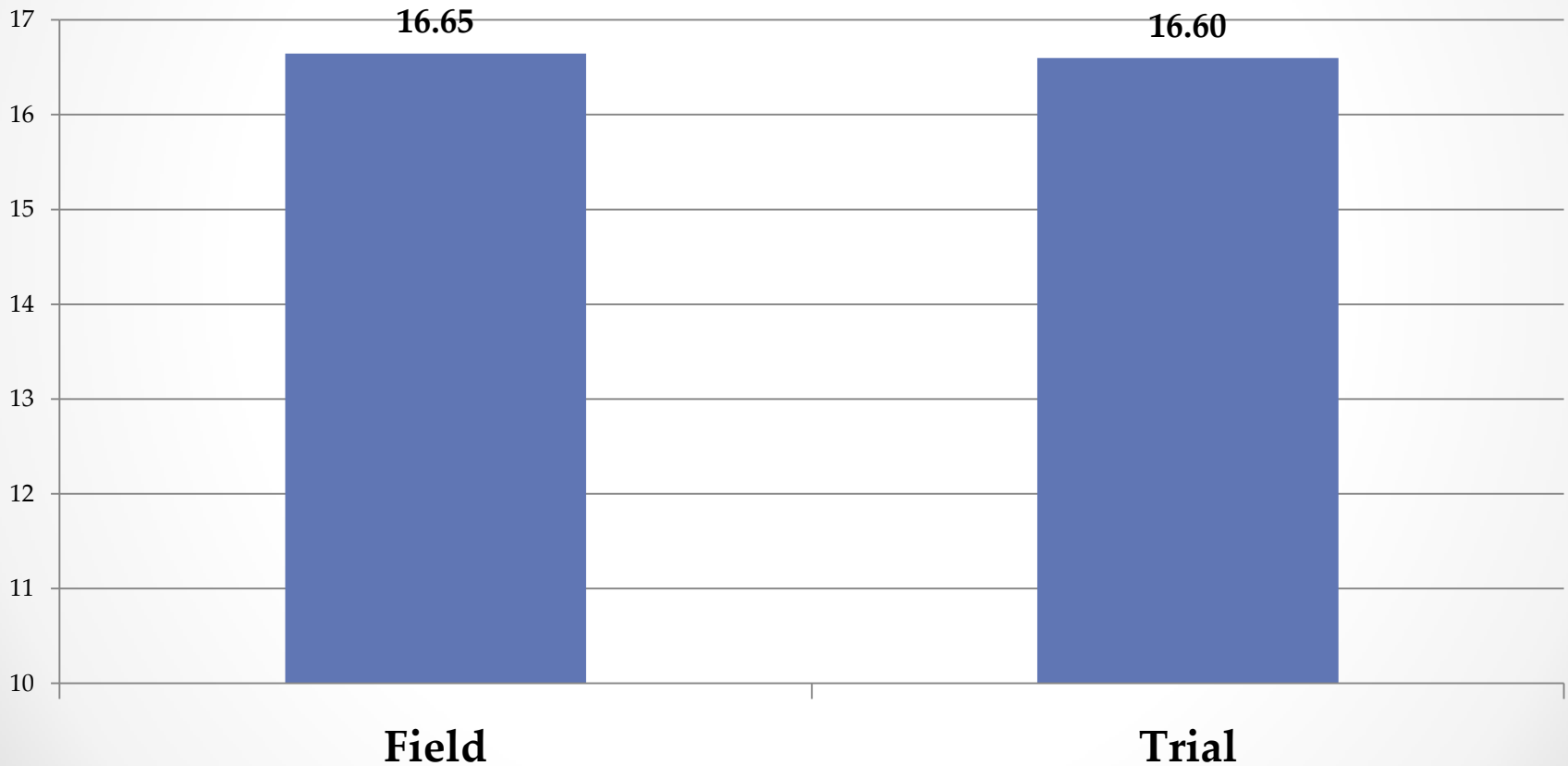
SMBSC Varieties

- Preliminary Conclusion:
 - Varieties approved for use at SMBSC have the ability to produce sugar content equal to or greater than varieties planted in other RRV sugar cooperatives.

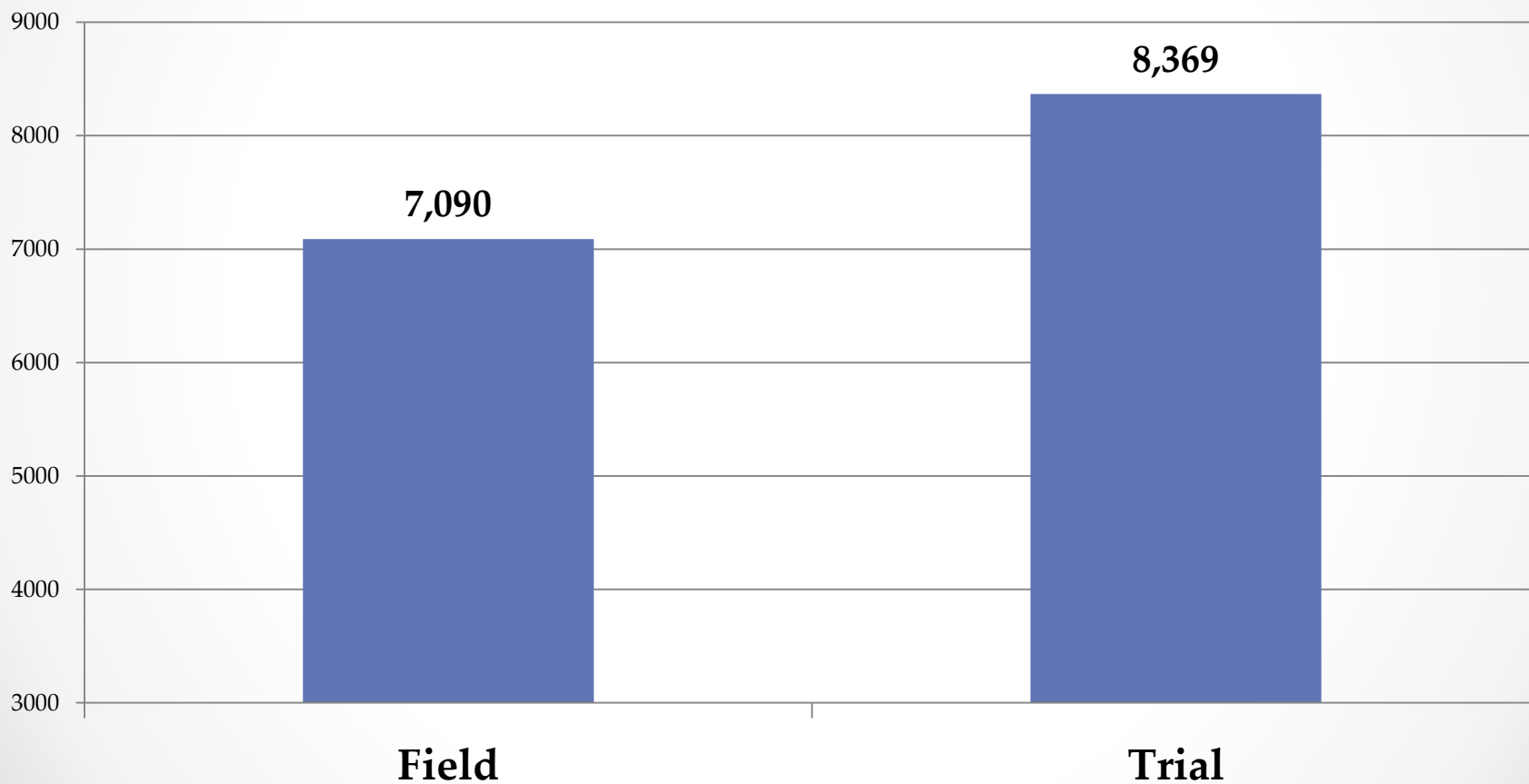
SMBSC Field vs. Trials

- Are SMBSC growers able to produce the same sugar content as are seen in the OVT's?
 - Compared the 5 most planted varieties in each of the last 5 years
 - Changed each year
 - Yield and quality results from growers fields (Ag Practice Database) vs.
 - Yield and quality results from the same varieties in the same year in the OVT's (OVT results)

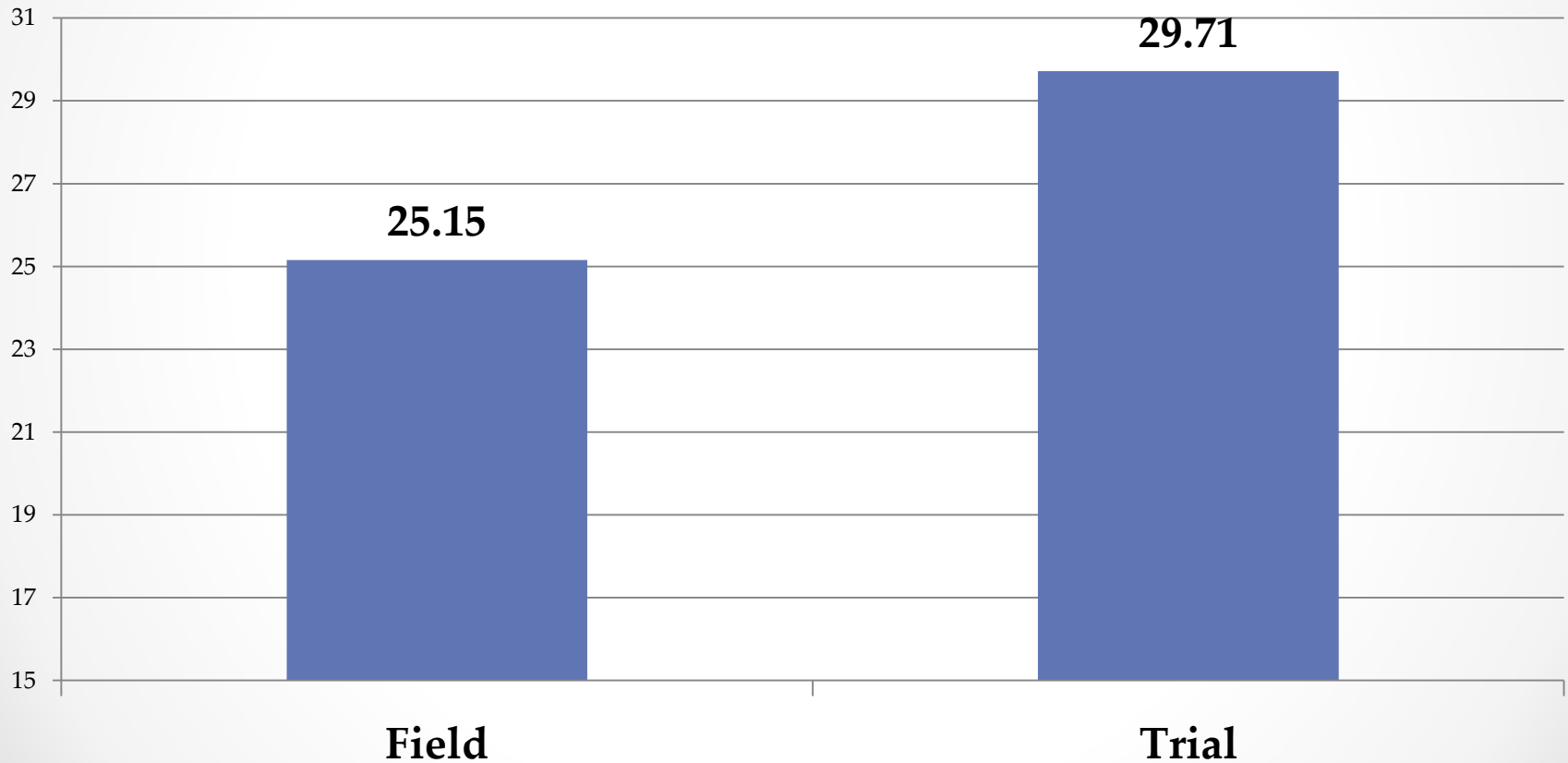
Average % Sugar of the Five Most Planted Varieties in the Field vs. in the OVT's (2011 - 2016)



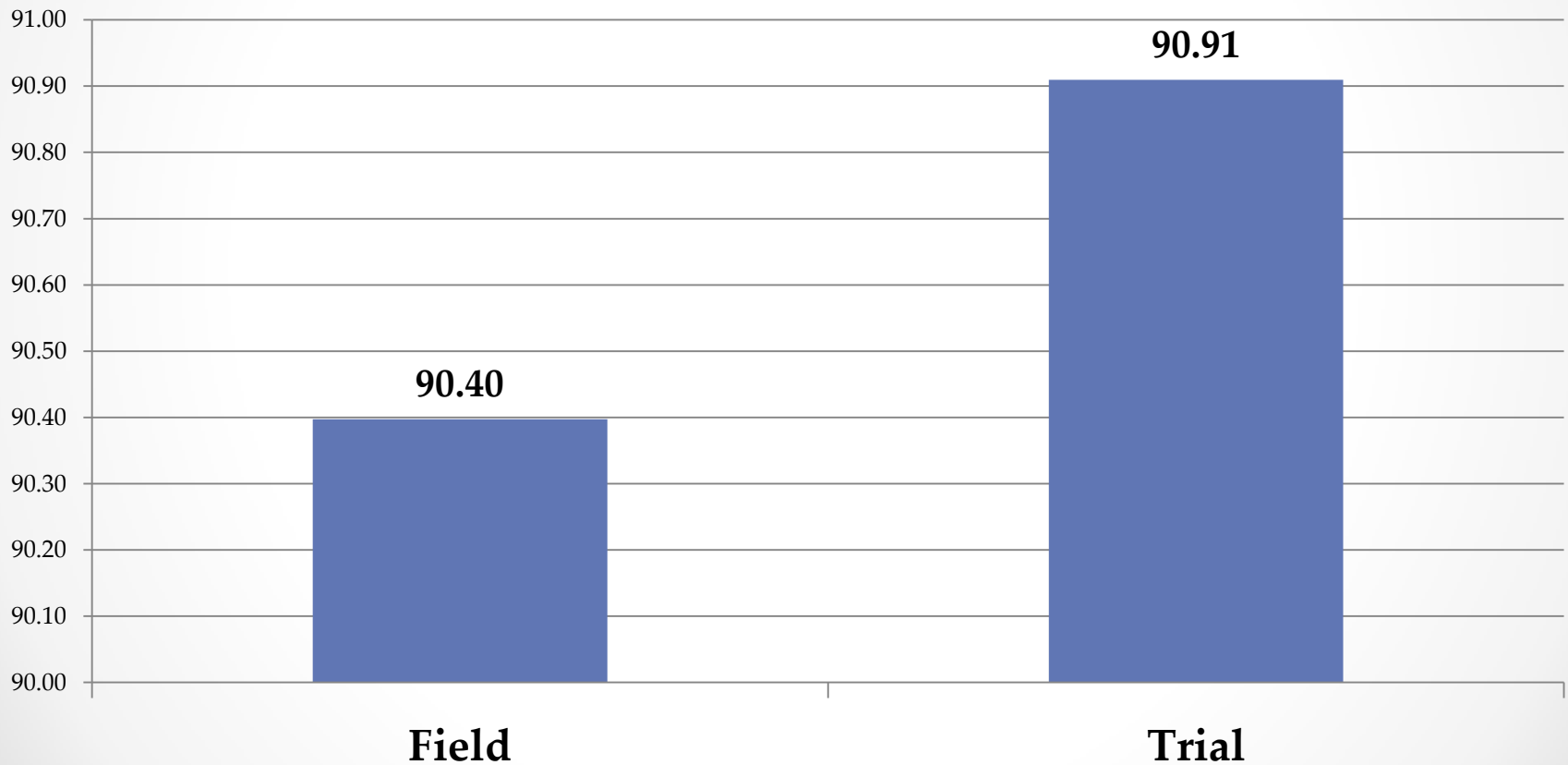
Average ESA of the Five Most Planted Varieties in the Field vs. in the OVT's (2011 - 2016)



Average TPA of the Five Most Planted Varieties in the Field vs. in the OVT's (2011 - 2016)



Average % Purity of the Five Most Planted Varieties in the Field vs. in the OVT's (2011 - 2016)



SMBSC Field vs. Trials

- Conclusion:
 - On average (based on fields in the Ag Practice Database) beets grown in production fields are achieving similar sugar content as we are seeing in the OVT's.
 - On average beets grown in production fields result in an ESA that is 1279 lbs. / Ac less than are seen in the OVT's.
 - On average beets grown in production fields are achieving yields 4.5 TPA less than are seen in the OVT's. - **Understandable**
 - Pick the best spots in the field
 - No end rows
 - Essentially no wheel tracks
 - On average beets grown in production fields achieve a purity that is 0.51% less than is seen in the OVT's.

SMBSC Purity

- How to improve purity in production fields?
- 2 primary factors impact purity
 - **Nitrogen management**
 - **Consistency and depth of scalping**

SMBSC N Rec's

Organic Matter %	Total N {soil test + applied} Recommendation (lbs./Ac.)
0 - 3	130
3 - 4	120
4 - 5	110
5 - 7	100
> 7	80

OM Mapper

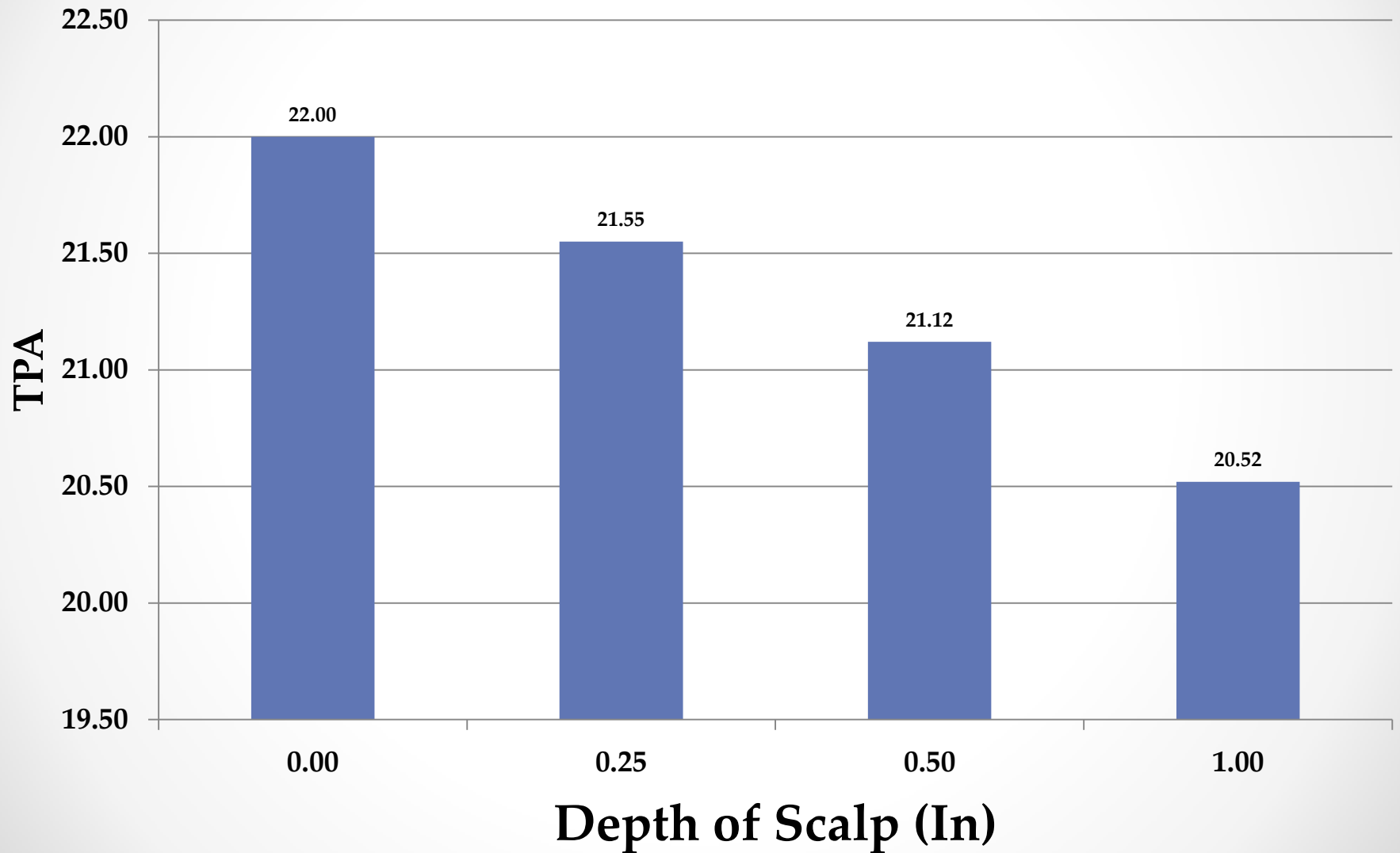
- Use in conjunction with soil sampling to create management zones.
- They are **FREE** as long as the field is planted to sugar beets!
- Zone management is the next step.
- Environmentally responsible!



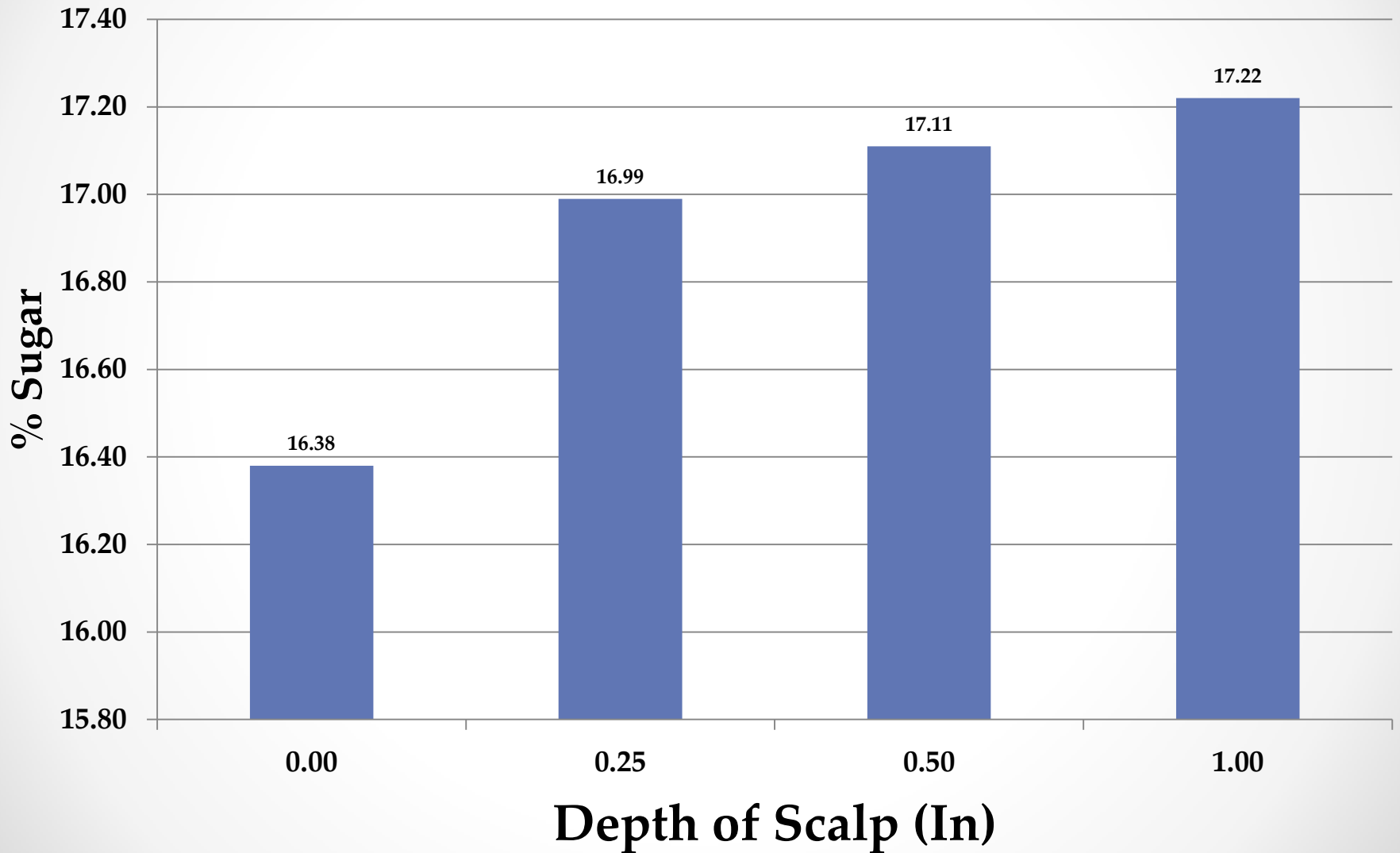
Scalping (2003 – 05 Study)

- Impact of scalping on yield and quality
- Scalping Depths
 - 0.00 inches = No scalp
 - 0.25 inches deep = 2.5 inches diameter
 - 0.50 inches deep = 3.5 inches diameter
 - 1.00 inches deep = 5.0 inches diameter
- Point of reference = Research group sets scalper to 1 1/8 inch depth

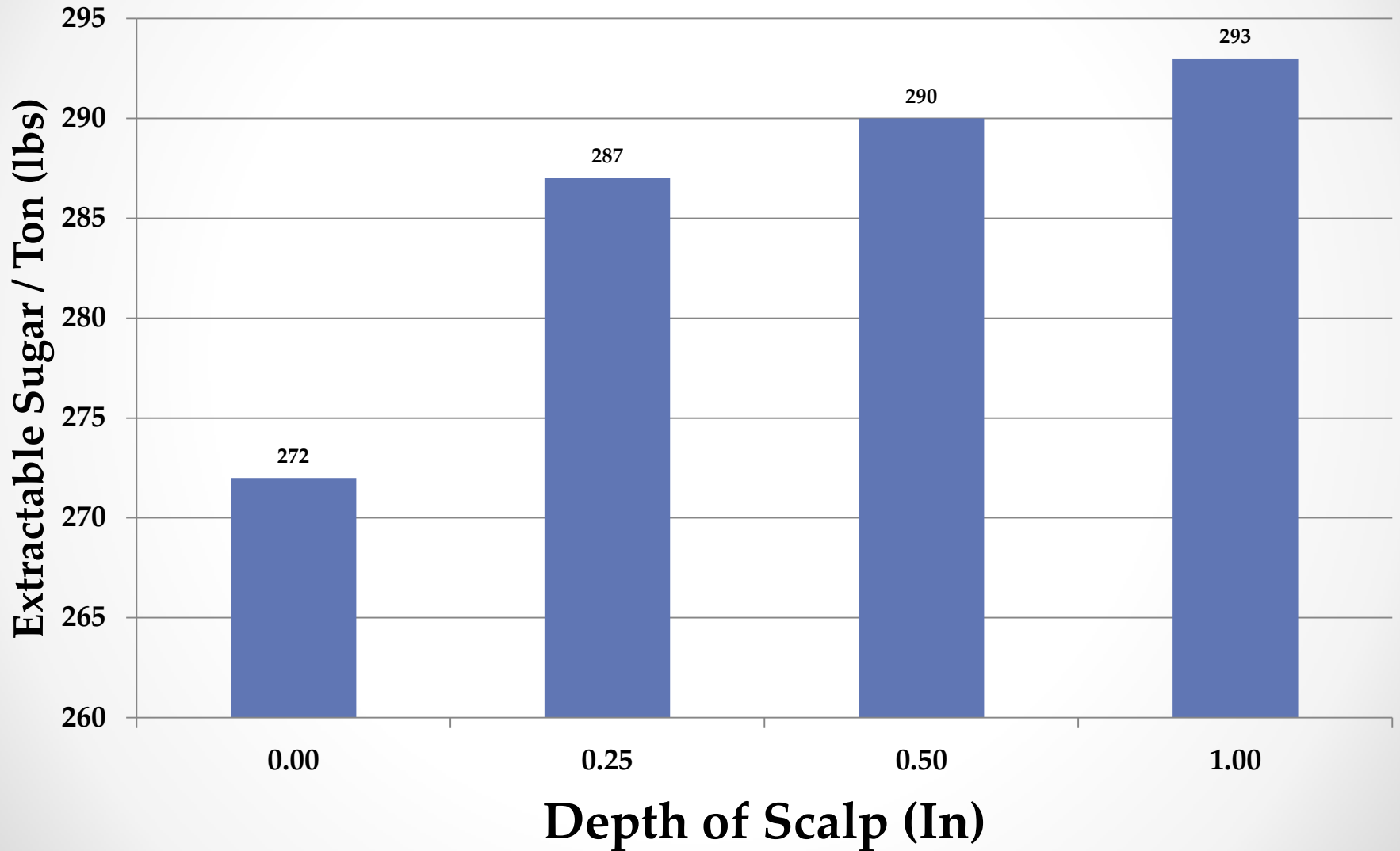
Effect of Scalping Depth on Sugar Beet Yield (2003 - 2005)



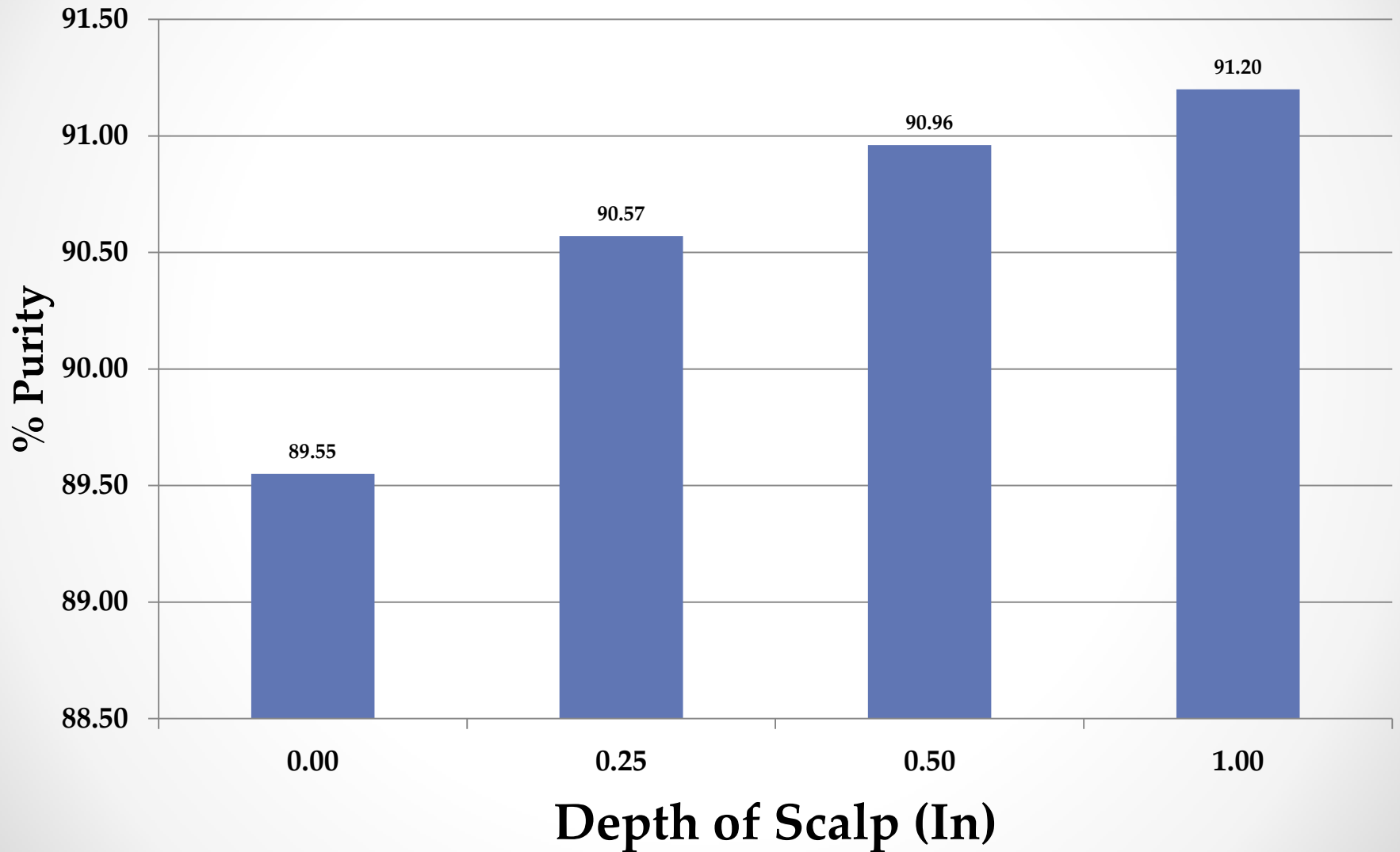
Effect of Scalping Depth on Percent Sugar (2003 - 2005)



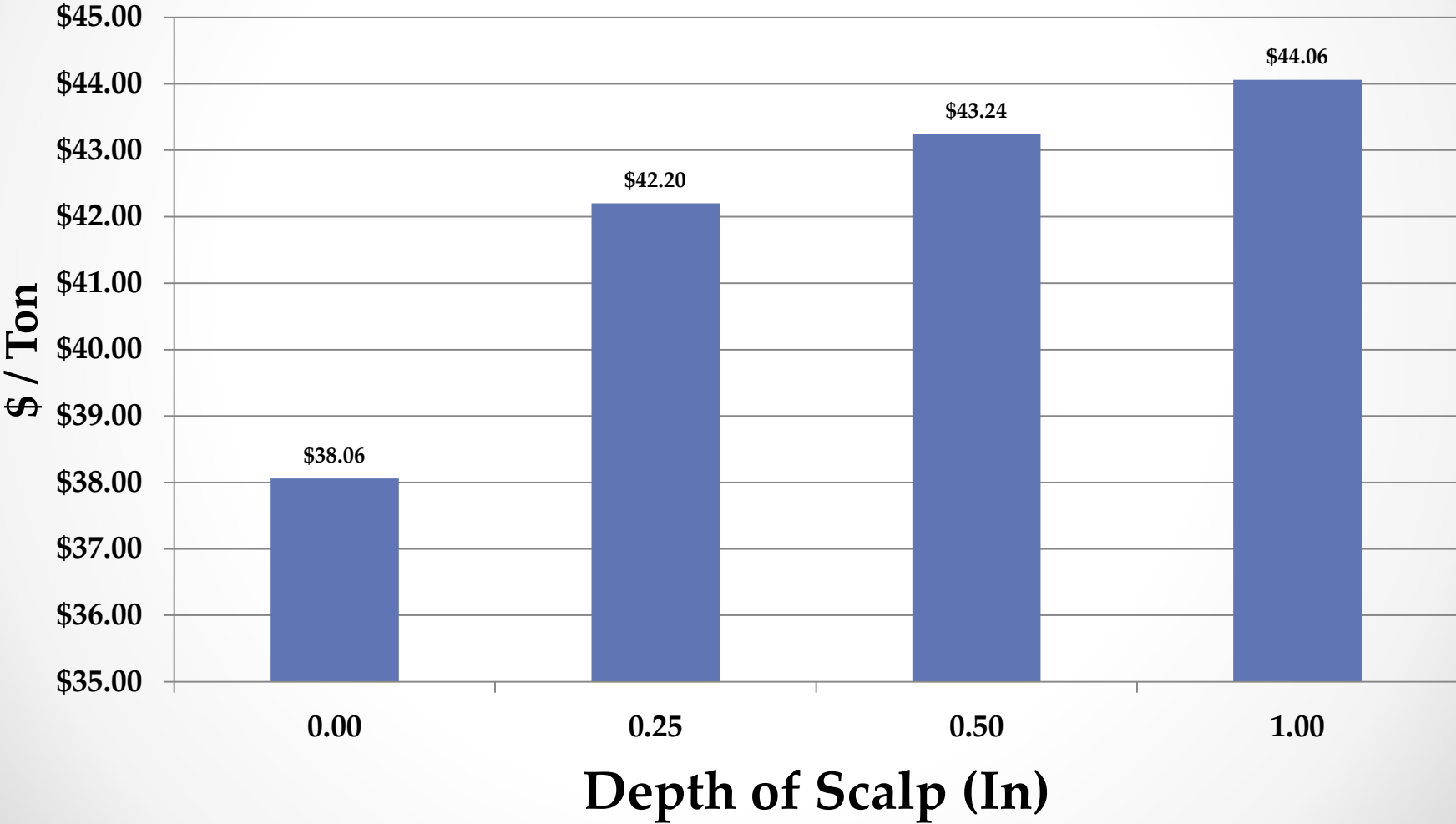
Effect of Scalping Depth on EST (lbs.) (2003 - 2005)



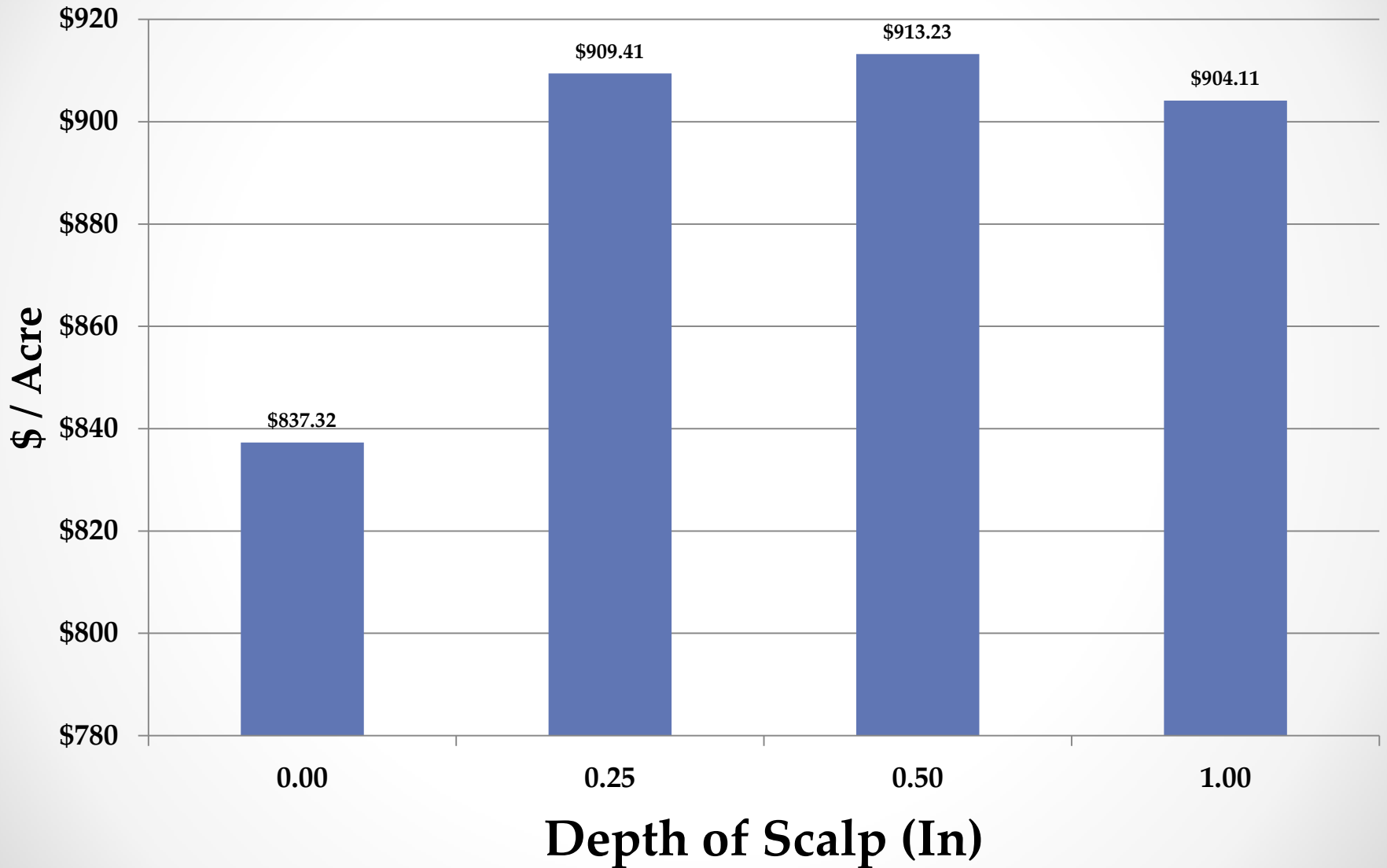
Effect of Scalping Depth on Percent Purity (2003 - 2005)



Effect of Scalping Depth on \$/Ton (FY17 Payment Calc) (2003 - 2005)



Effect of Scalping Depth on \$/Acre (FY17 Payment Calc) (2003 - 2005)



SMBSC Quality Conclusions

- SMBSC varieties will produce sugar content greater than or equal to varieties planted in other RRV sugar cooperatives.
- SMBSC growers are able to achieve sugar content equal to that which is realized in SMBSC OVT's.
- SMBSC growers on average achieve 0.51% lower purity than what is realized in SMBSC OVT's.
- The easiest way for SMBSC growers to increase revenue is to manage purity more closely.
 - The 2 most important factors influencing purity, and thus revenue, are:
 - **Nitrogen management**
 - **Consistency and depth of scalping**

Questions?