



SOIL REMEDIATION PROJECTS- REVIEWING TWO YEARS OF RESULTS

“NB Potato Industry Transformation Initiative”

THE TEAM

- Potatoes New Brunswick
- McCain Foods (Canada)
- Agriculture & Agri-Food Canada
- Ventus Geospatial
- Eastern Canada Soil & Water Conservation Center
- NB Department of Agriculture, Aquaculture and Fisheries
- McCain Fertilizer
- Grower Cooperators



THE OBJECTIVE

- **Improve profitability and competitiveness through mitigation of limitations to potato yield**
- **Increase total yield by 45 cwts/acre in 5 years**



THE PROJECTS

- **Deep Tillage**
- **In-Furrow Decompaction**
- **Nurse Crop**
- **Compost**



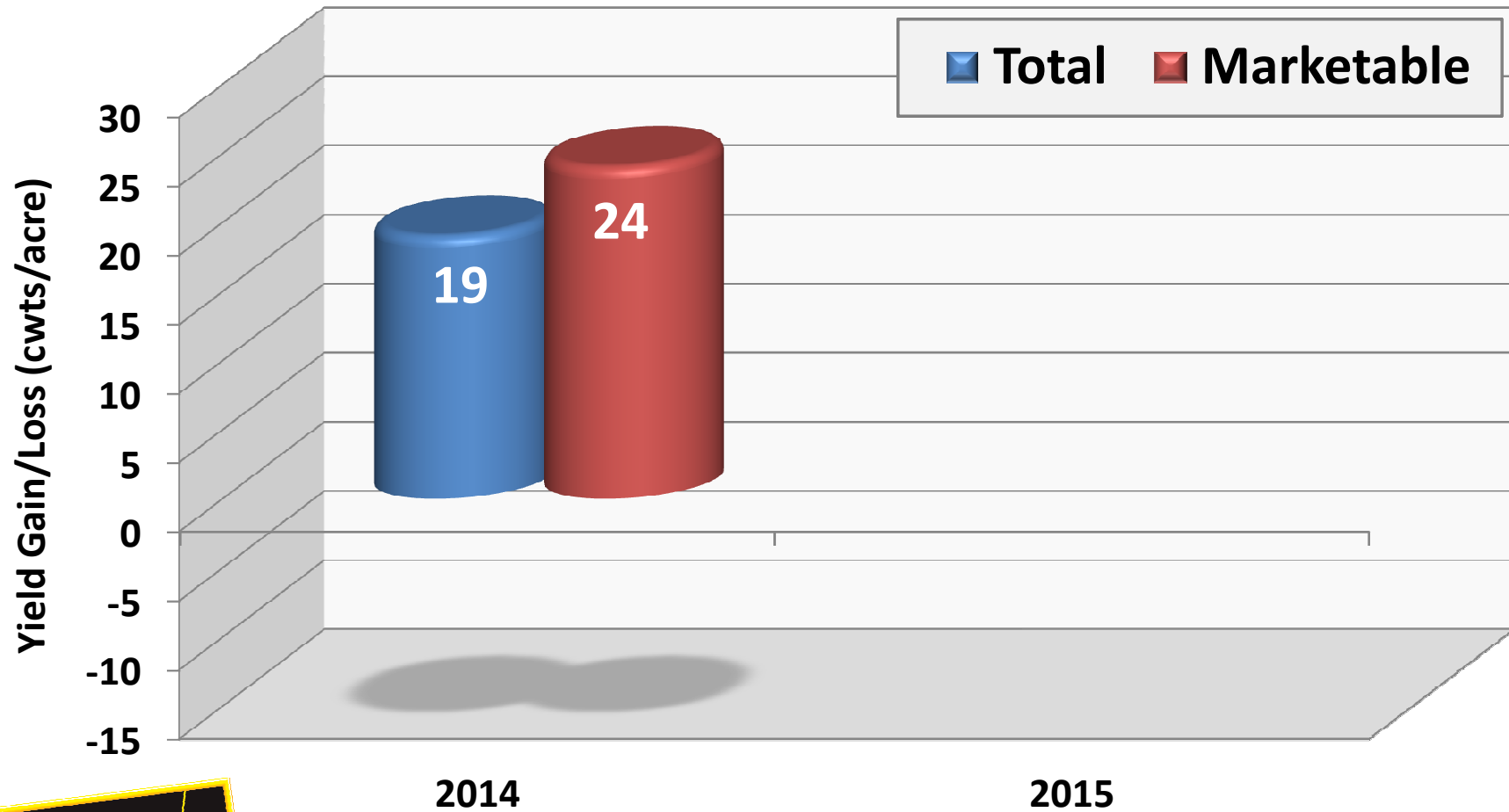
DEEP TILLAGE

- **Reduce compaction, improve drainage, increase rooting depth and nutrient absorption**
- **2014**
 - Spring: 3 sites @ 14 in.
 - Previous Fall: 5 sites @ 14 and 20 in.
- **2015**
 - Spring: 1 site @ 14 inches

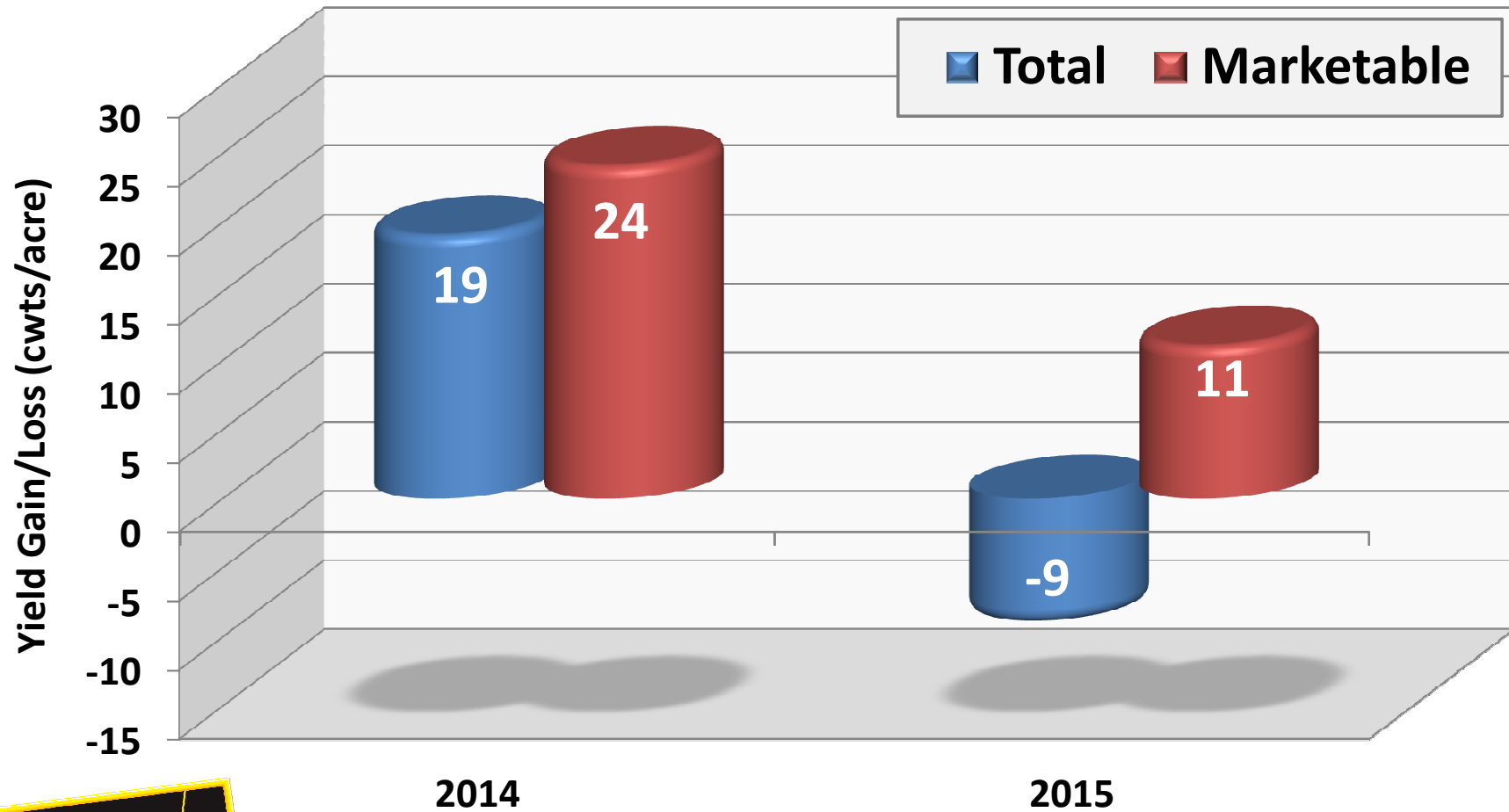




Effect of 'Spring' Deep Till on Russet Burbank Total and Marketable Yield Gain/Loss, 2014-2015



Effect of 'Spring' Deep Till on Russet Burbank Total and Marketable Yield Gain/Loss, 2014-2015



IN-FURROW DECOMPACTION

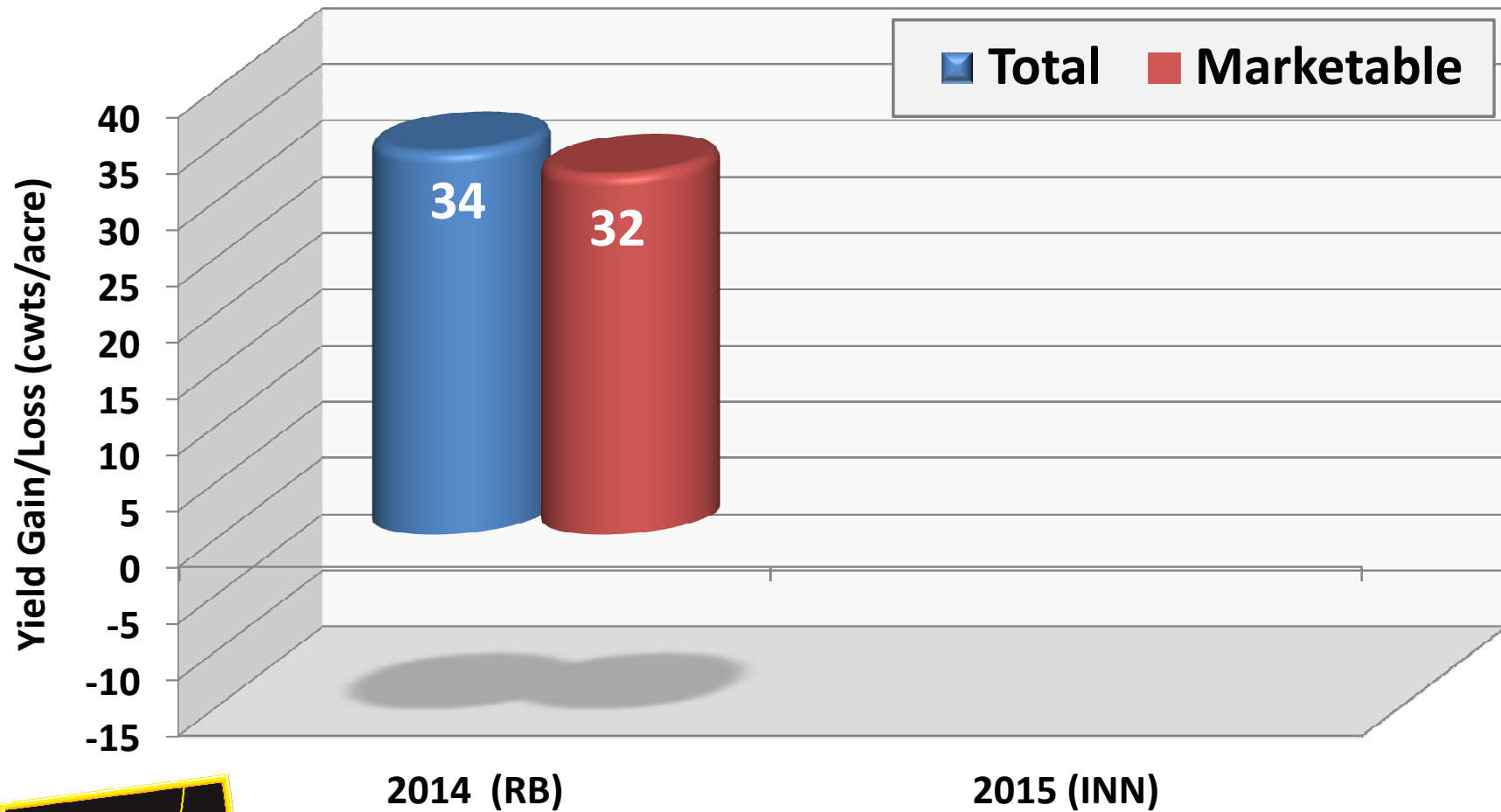
- Reduce compaction, increase water infiltration, reduce runoff and accumulation of water in low spots
- 2014 - 1 site, 0.75 acre, R. Burbank
- 2015 – 1 site, 12 acres, Innovator
- Two weeks after planting
- Depth of 8 inches



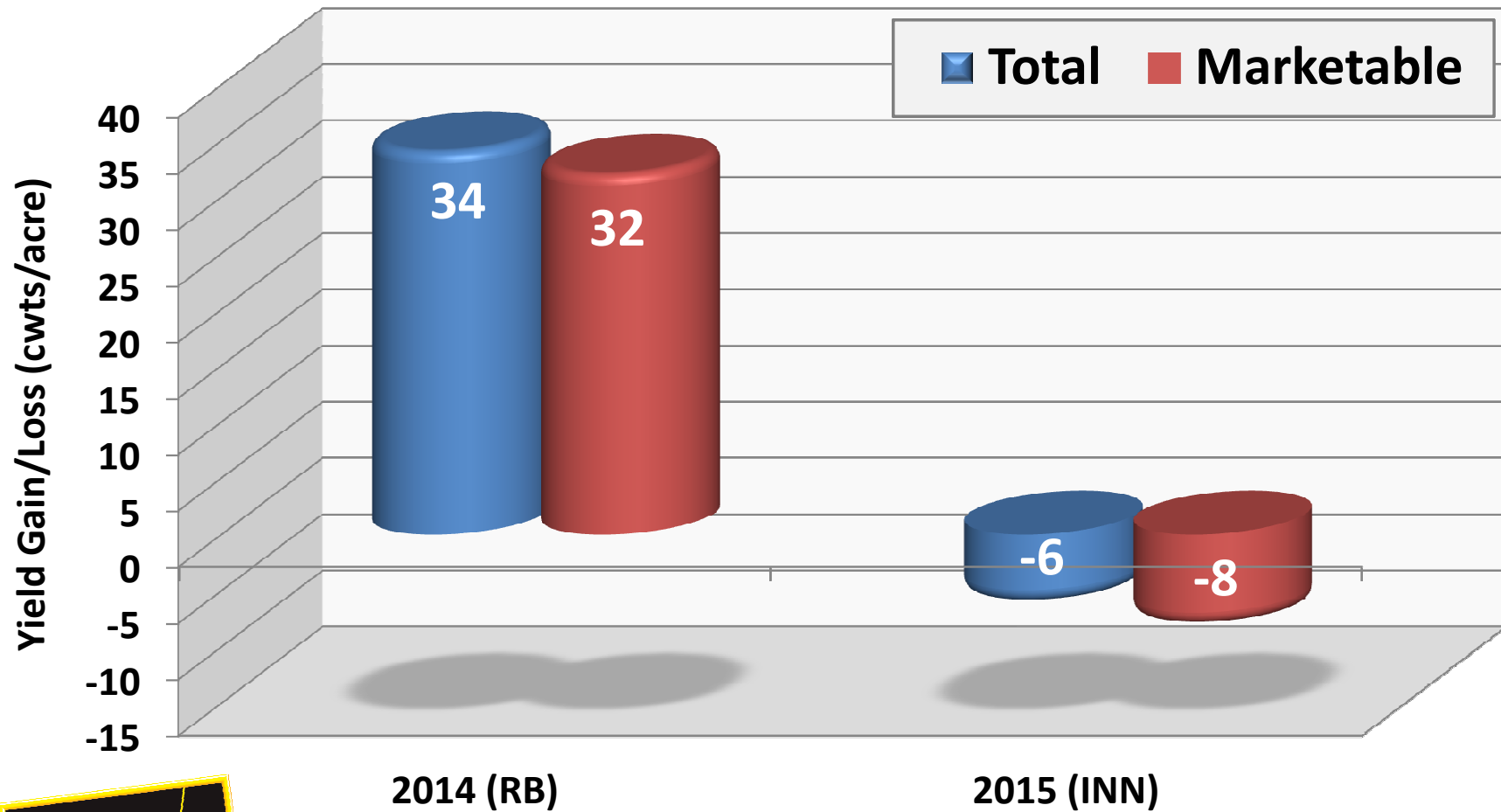




Effect of In-Furrow Decomposition on Total and Marketable Yield Gain/Loss, 2014-2015



Effect of In-Furrow Decomposition on Total and Marketable Yield Gain/Loss, 2014-2015



NURSE CROP

- **Improve water holding capacity, reduce surface runoff and minimize water accumulation in low lying areas**
- **Seeded immediately before planting**
- **Winter rye, barley or oats @ 100-150 #/acre**
- **2014: 1 site, 0.5 acre, Shepody**
- **2015: 8 sites, 450 acres**
 - **R. Norkotah (1), Blazer Russet (1), R. Burbank (6)**









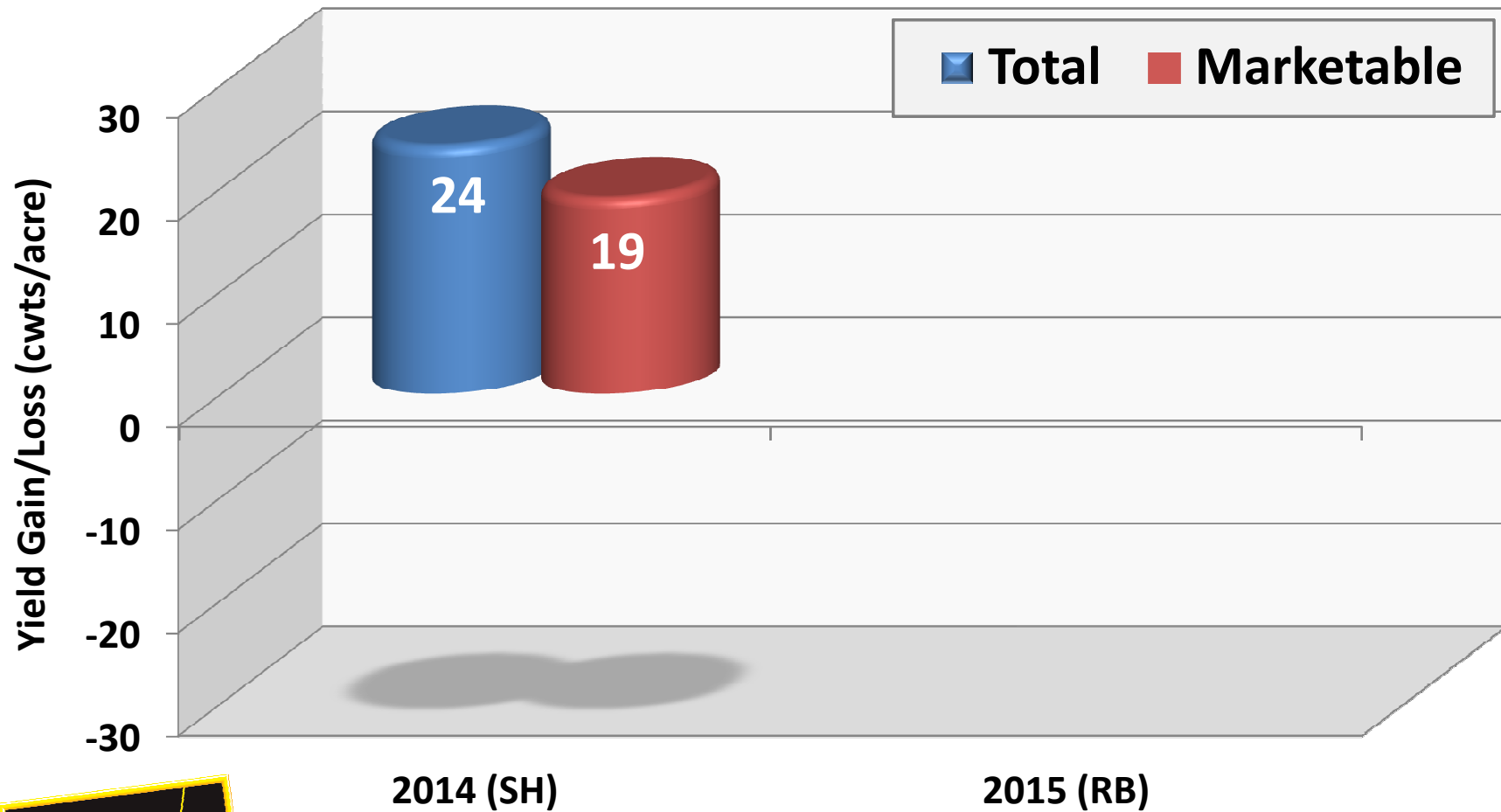




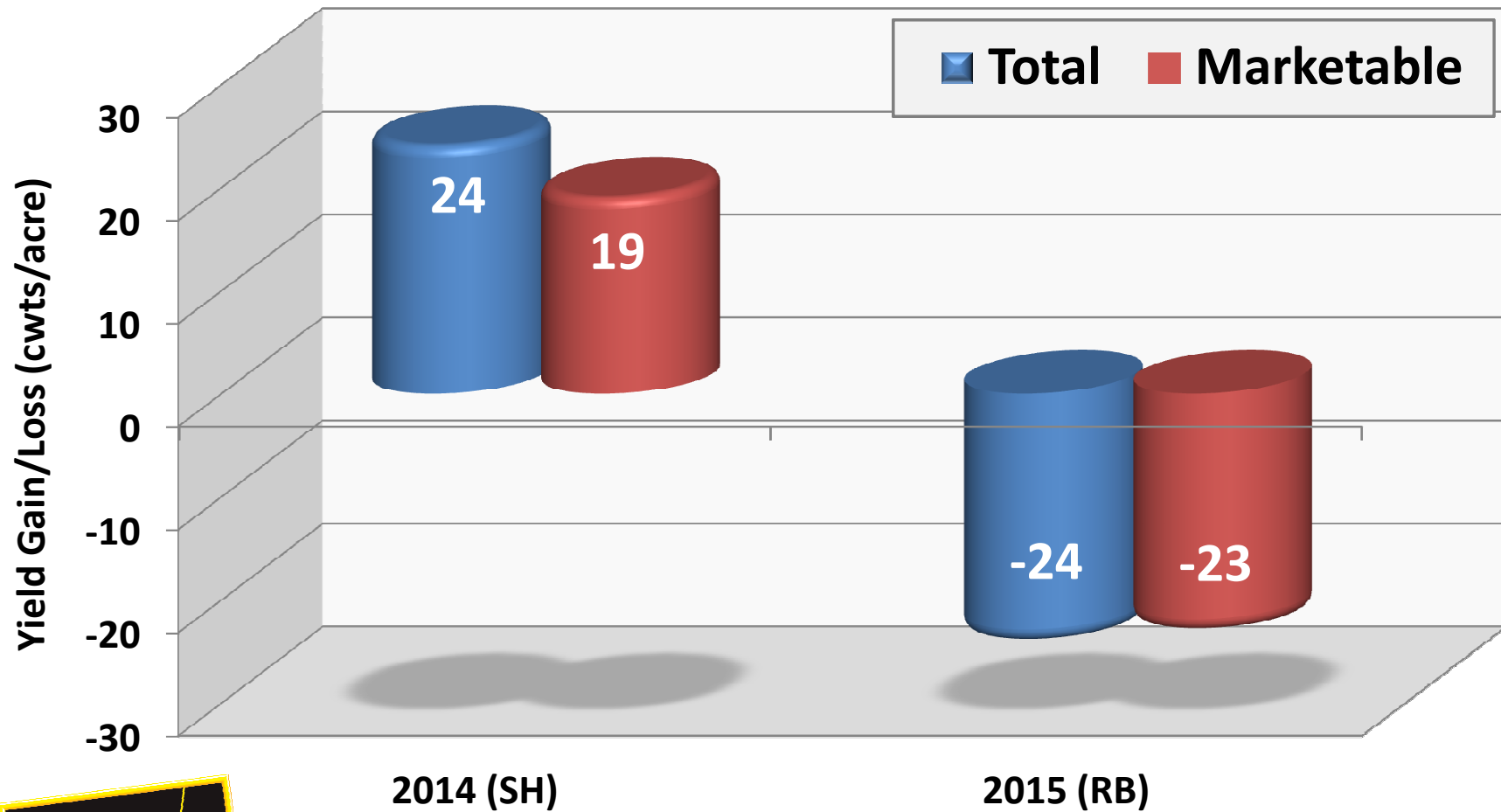




Effect of a Nurse Crop on Total and Marketable Yield Gain/Loss, 2014-2015



Effect of a Nurse Crop on Total and Marketable Yield Gain/Loss, 2014-2015



COMPOST PROJECT

- Increase organic matter, improve water retention, enhance soil health
- 2014: 3 sites - 2 in FV, 1 in GF, 6 acres
- 2015: 7 sites – 5 in FV, 2 in GF, 300 acres
- Application rate: 25 tons/acre fresh wt.
- No modification to fertility program

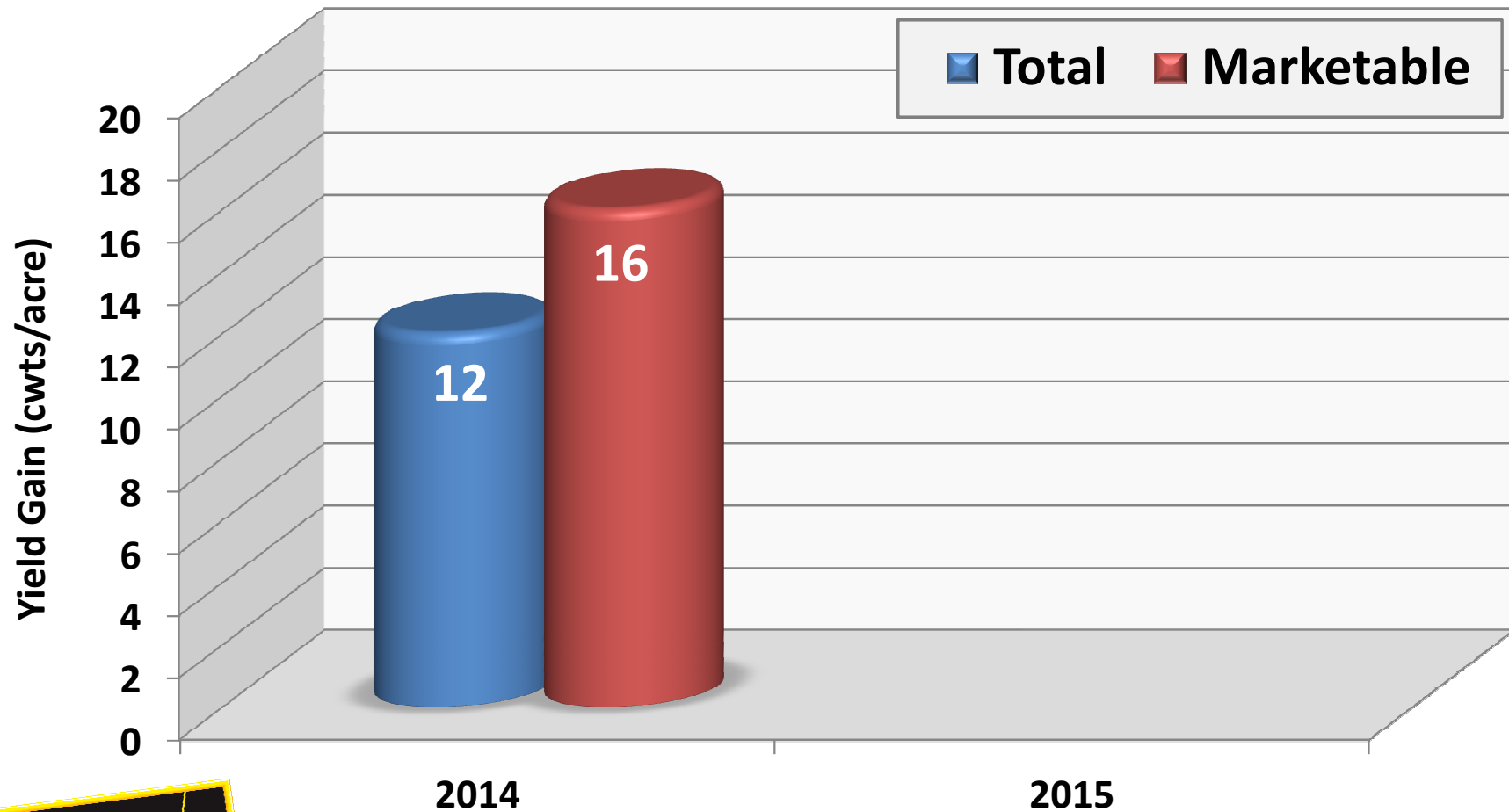




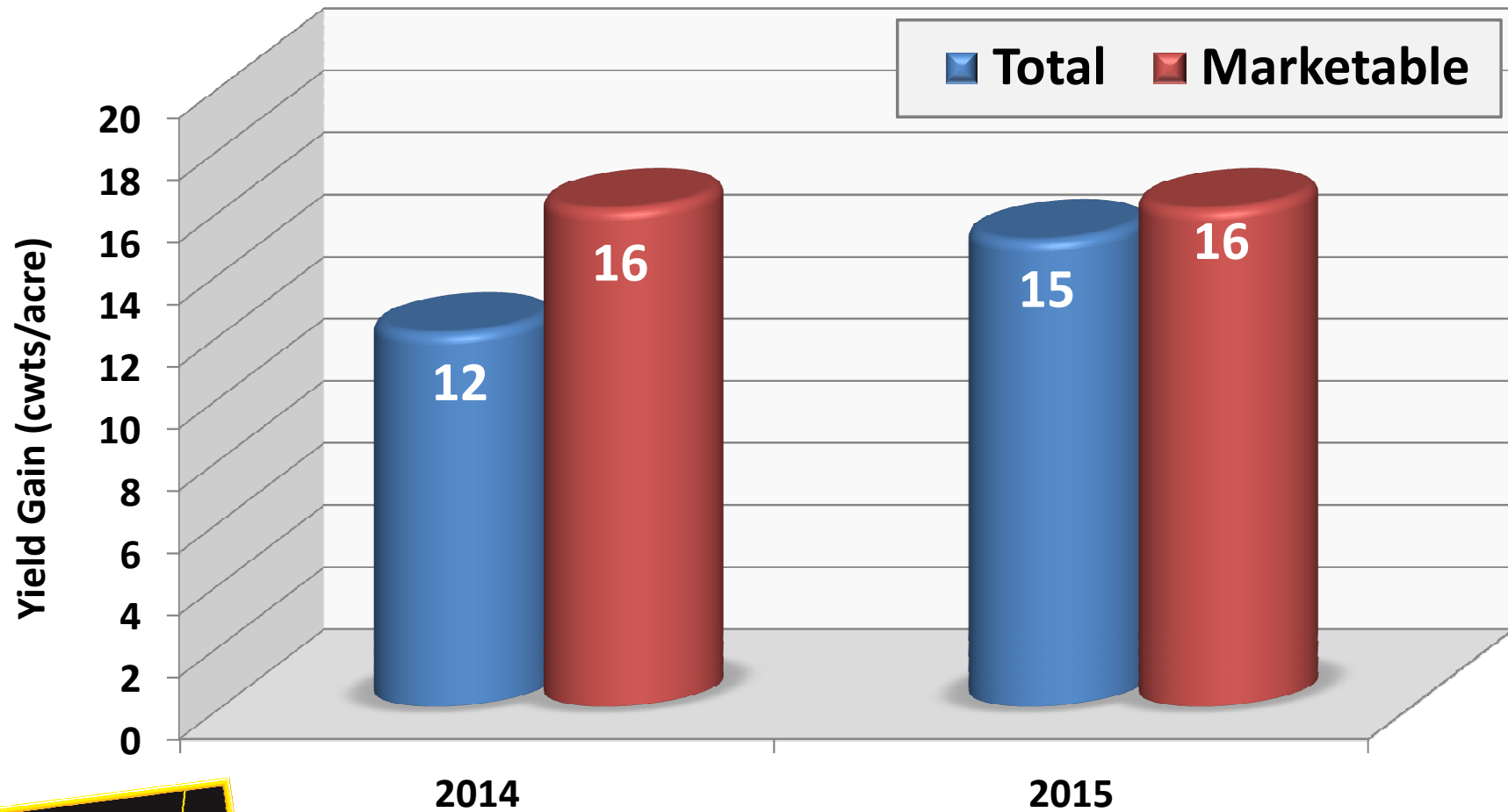




Effect of Compost on Russet Burbank Total and Marketable Yield Gain/Loss, 2014-2015



Effect of Compost on Russet Burbank Total and Marketable Yield Gain/Loss, 2014-2015



Key Learnings

- **Deep Tillage**

- ✓ **Best yield response observed in heavier soil types**
- ✓ **Difference observed between fall and spring likely related to soil moisture level more than season**



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- **Nurse Crop**
 - ✓ Reduced surface runoff, improved water infiltration and increased soil moisture level in the hill



Key Learnings

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 - ✓ Difference observed between fall and spring likely related to soil moisture level more than season
- **In-Furrow Decompaction**
 - ✓ Appeared to reduce compaction in the root zone
- **Nurse Crop**
 - ✓ Reduced surface runoff, improved water infiltration and increased soil moisture level in the hill
- **Compost**
 - ✓ A one-time application of compost at the rate of 25-tons per acre did not return an economical benefit in Year 1



Acknowledgements

- Tom Dixon
- Monica Everett
- Barb Sorrell
- Kim Poitras
- Ginette Decker
- James Pearson
- Chad Rennie



***“The nation that
destroys its soil
destroys itself”***

