

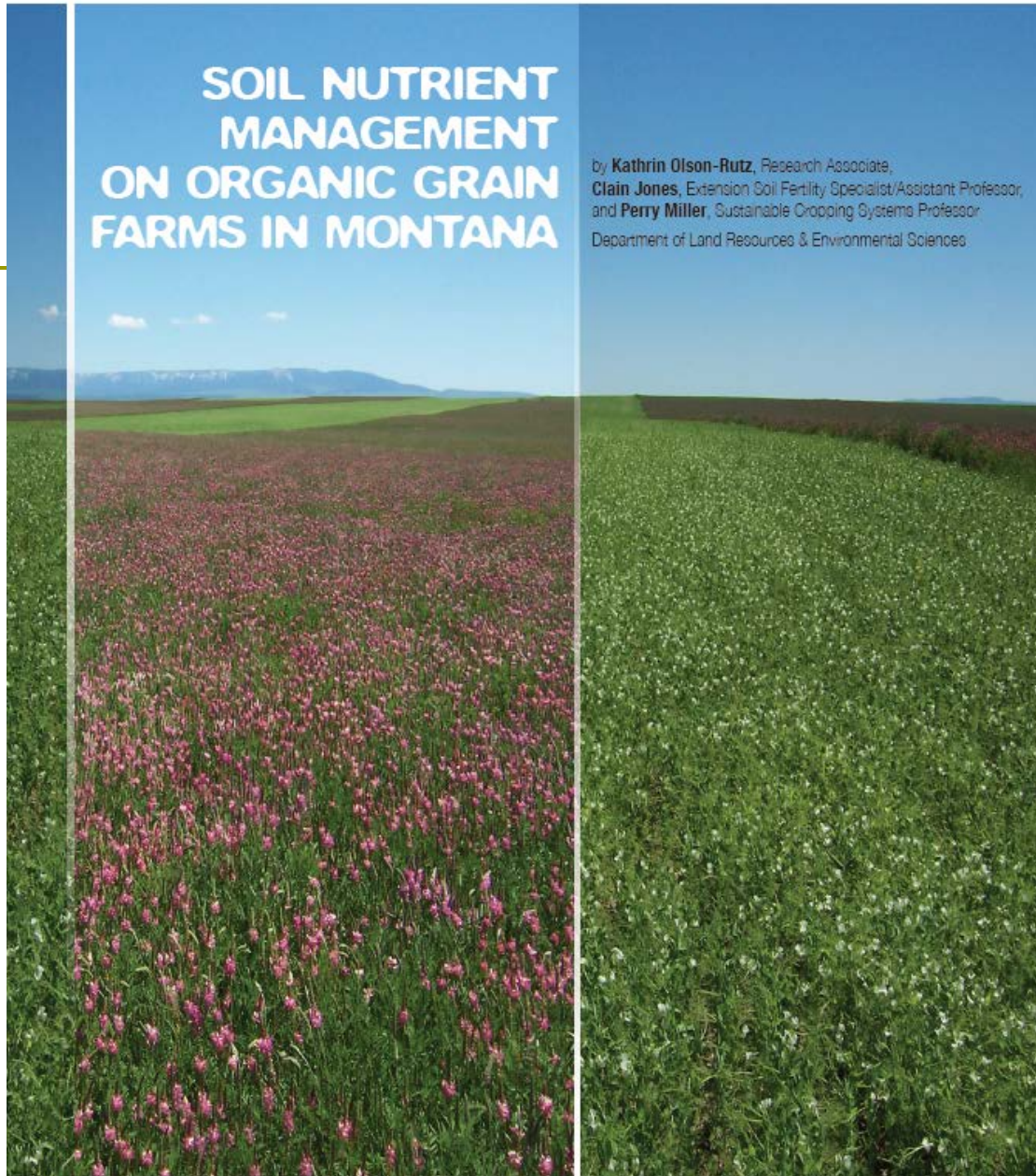
# Recent MSU Nutrient Management Research Results on Organically Managed Soils

Prepared for Montana Organic Association  
2011 Annual Conference, Dec 9 2011, Billings  
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# SOIL NUTRIENT MANAGEMENT ON ORGANIC GRAIN FARMS IN MONTANA

by **Kathrin Olson-Rutz**, Research Associate;  
**Clain Jones**, Extension Soil Fertility Specialist/Assistant Professor,  
and **Perry Miller**, Sustainable Cropping Systems Professor  
Department of Land Resources & Environmental Sciences



EB0200 October 2010



# Objectives

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- Show effects of manure on subsequent organic crop yield and nutrient uptake
- Show soil nitrogen contents of organic vs non-organic systems in the 6<sup>th</sup> and 8<sup>th</sup> year of cropping system studies



# Manure study

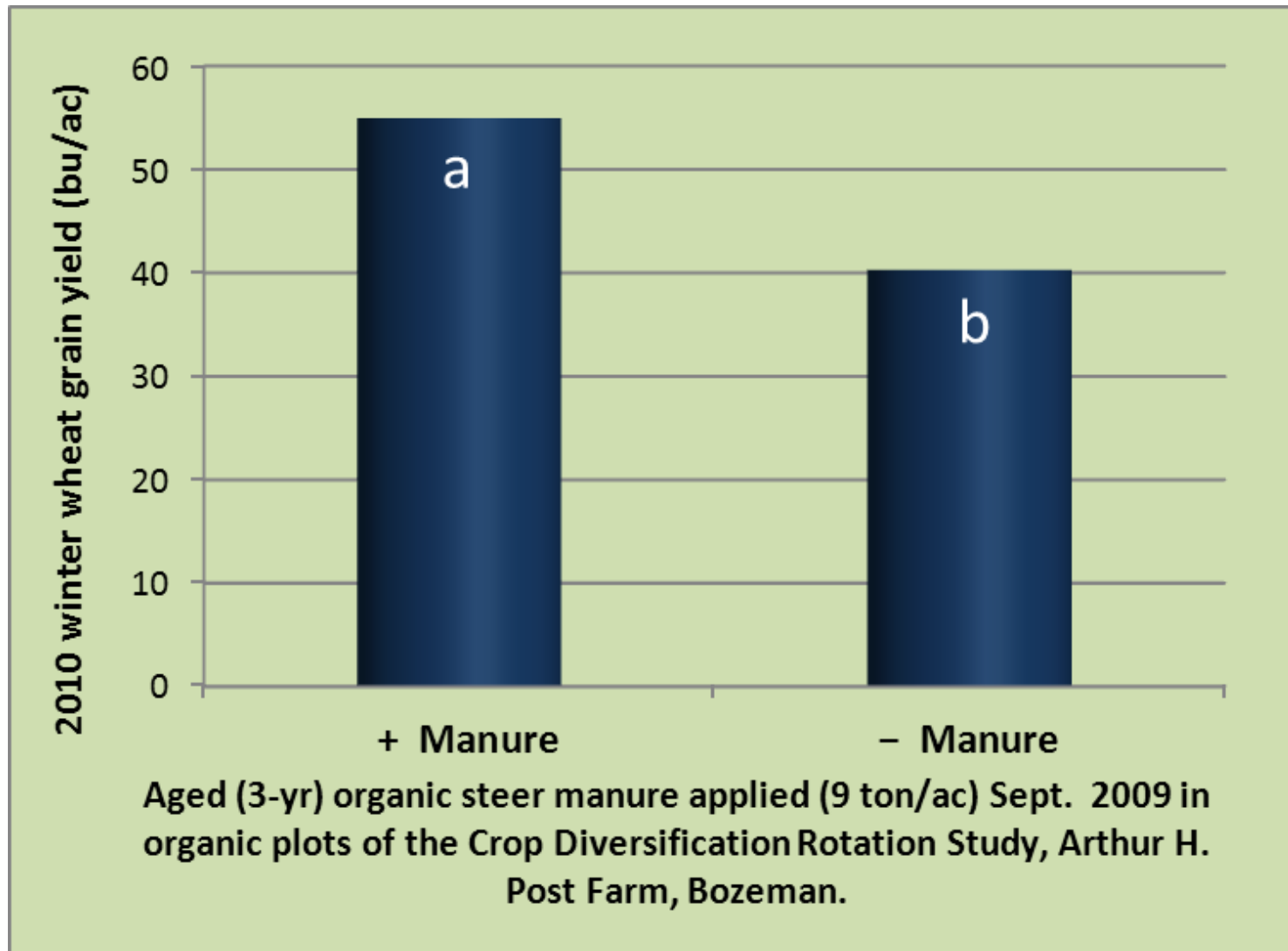
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- Applied ~9 tons/acre of 3 year aged steer manure to one seeder pass of Perry's CDRS ORG rotation in Sep 2009.
- Equated to 75 lb TOTAL  $P_2O_5$ /acre and ~400 lb TOTAL N/acre



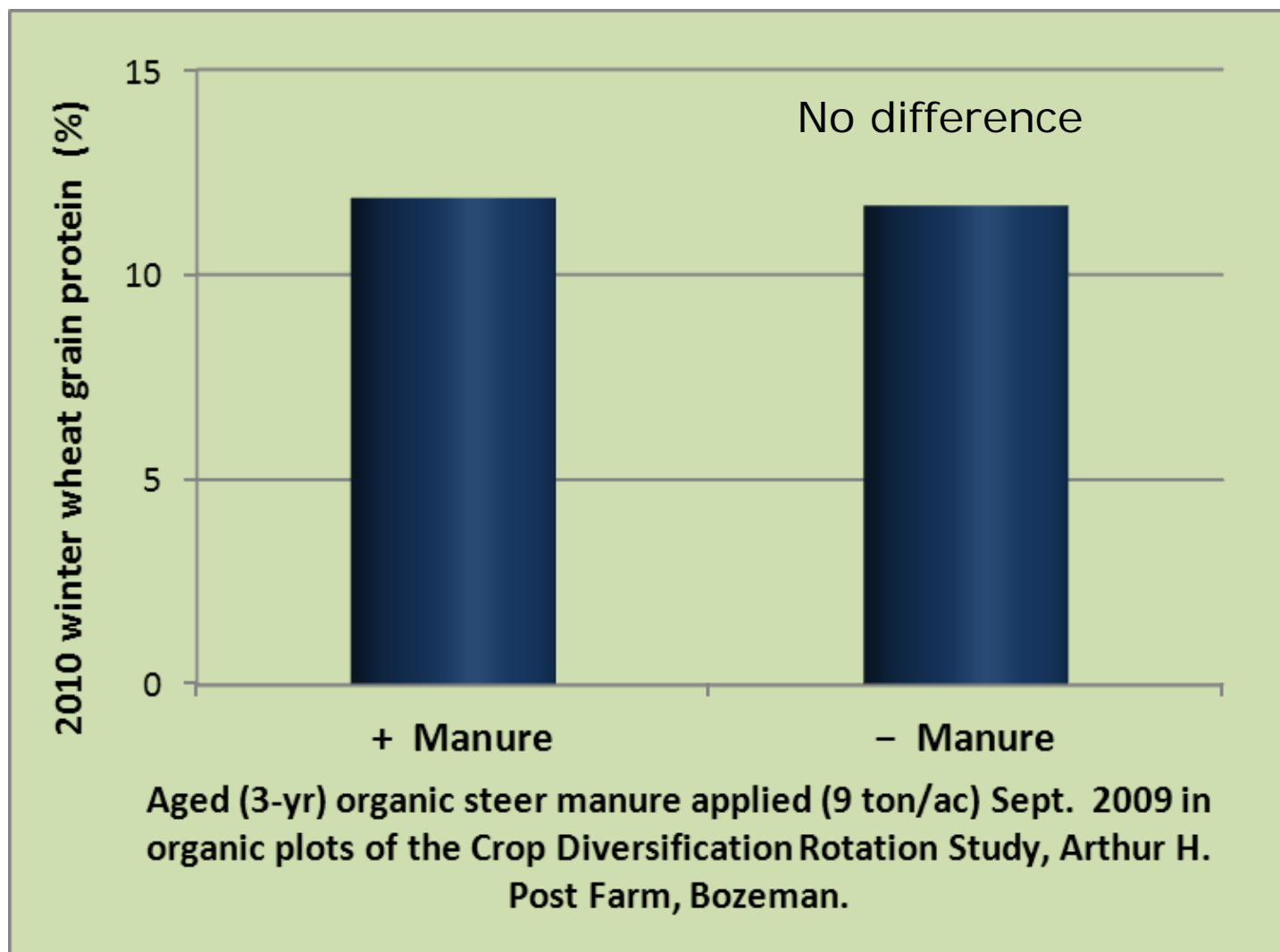
- Manure was tilled in prior to seeding winter wheat

# Effect of manure on 2010 winter wheat grain yield

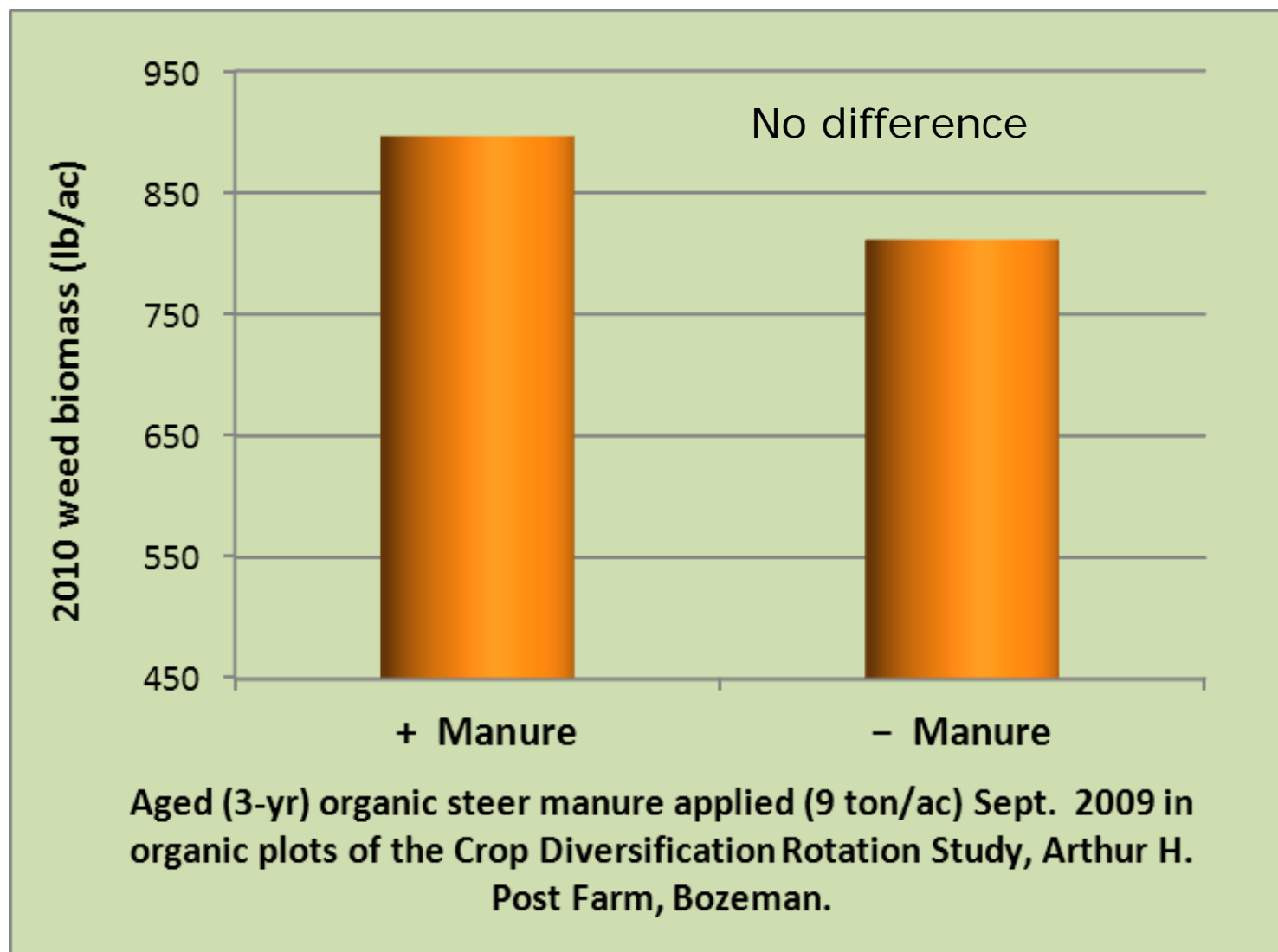


# Effect of manure on 2010 winter wheat grain protein

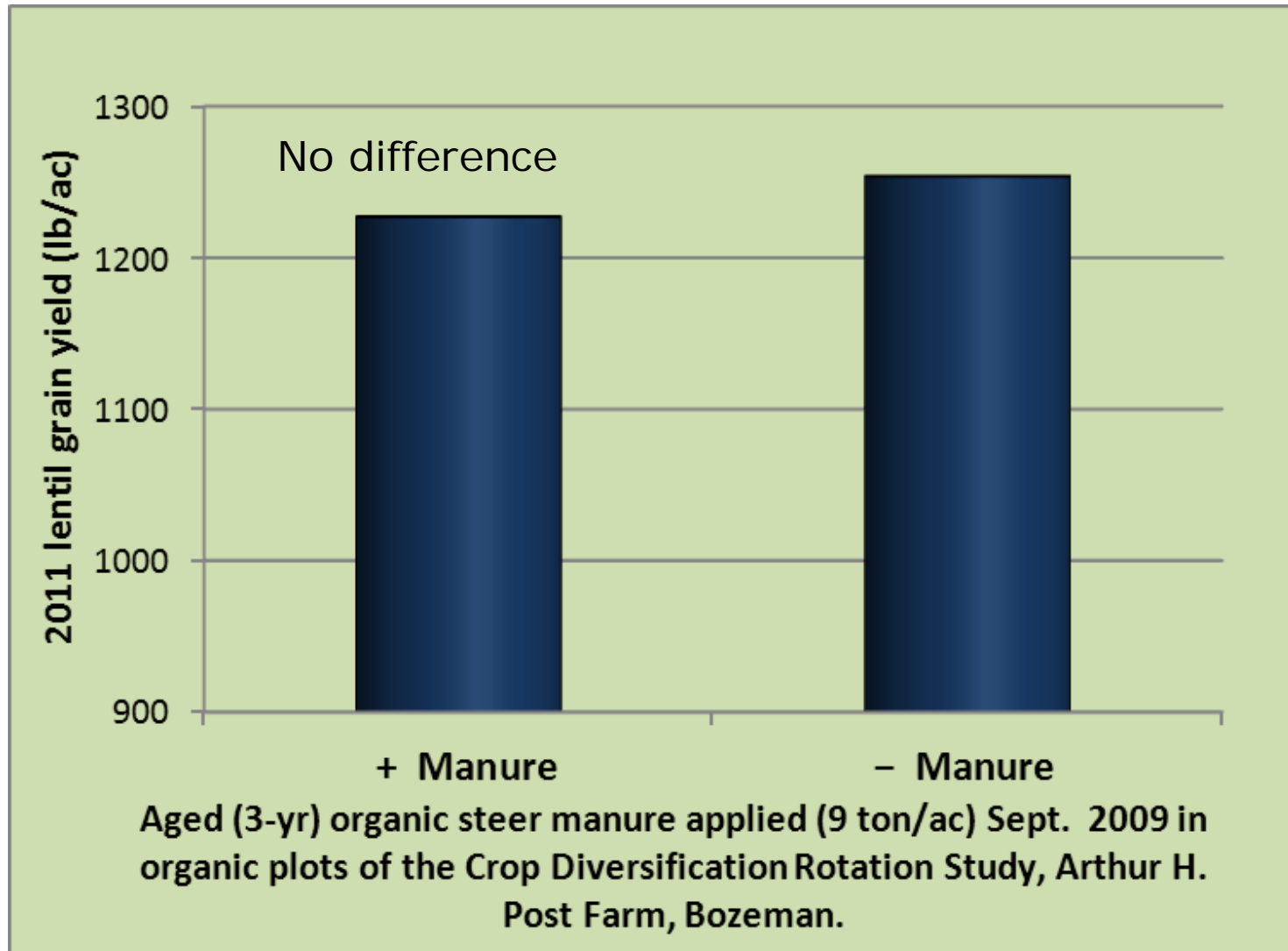
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# Effect of manure on 2010 weed biomass

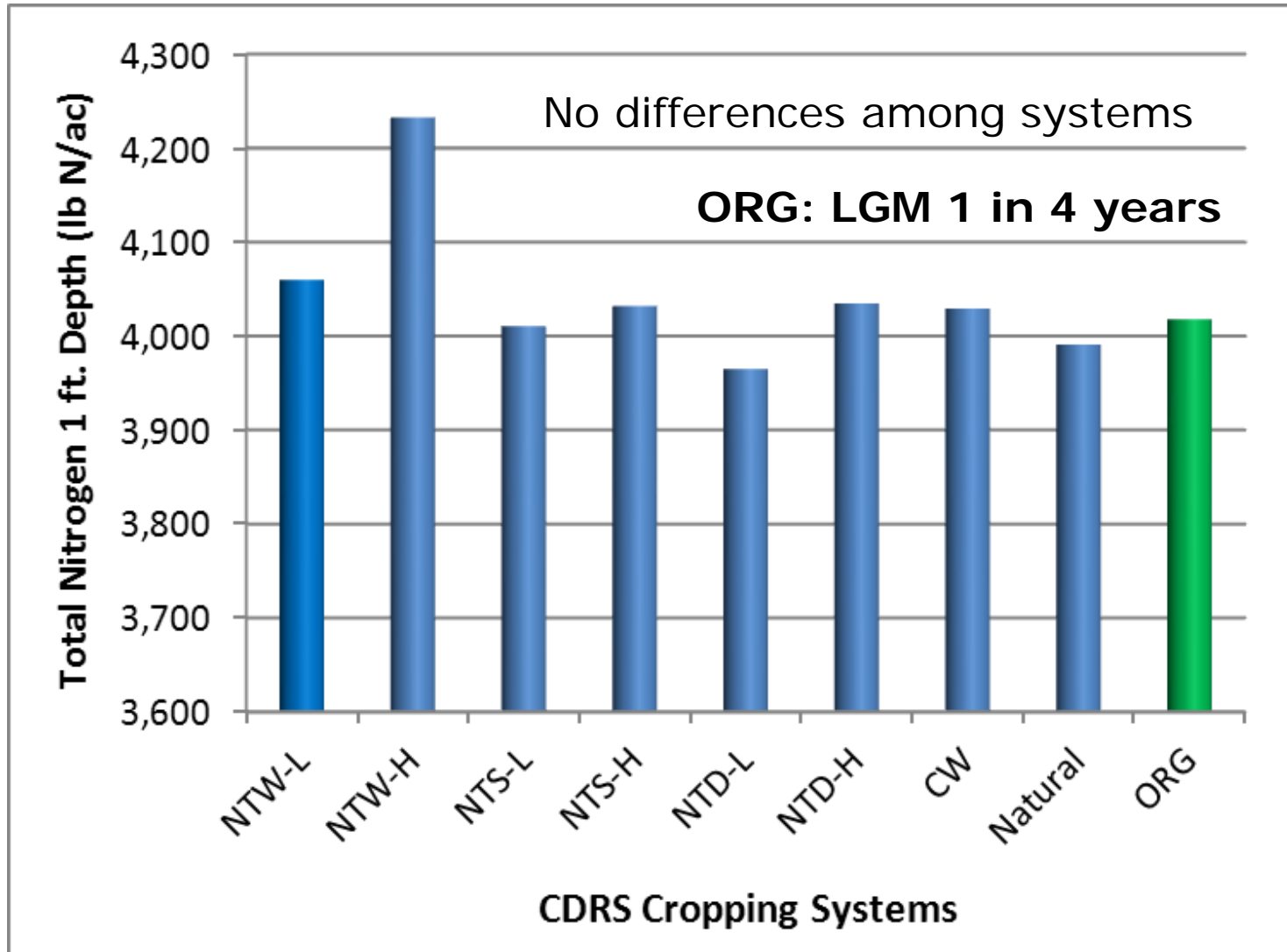


# Effect of manure on 2011 lentil grain yield

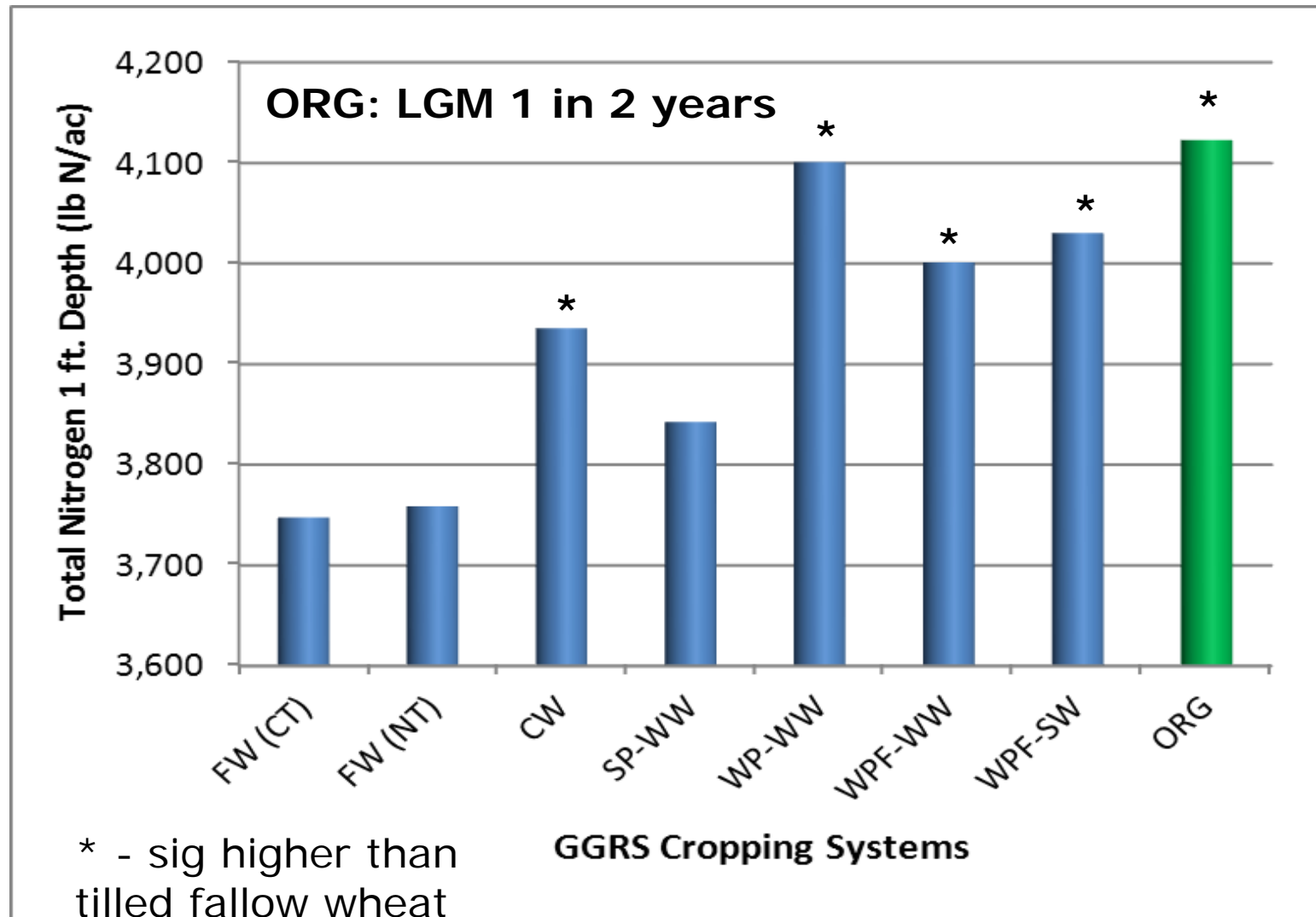




# Cropping system effects on soil N after 8 years near Bozeman, CDRS



# Cropping system effects on soil N after 6 years near Bozeman, GGRS



# Summary

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- ❑ Manure increased 2010 ww grain yield, but not protein, weeds, or 2011 lentil yield. Effect was likely from both N and P.
- ❑ LGM grown 1 in 4 years in organic systems resulted in similar soil N as conventionally fertilized systems.
- ❑ LGM grown 1 in 2 years resulted in higher soil N than conventional wheat-fallow.

# For more Information:



Soil Fertility Website:

<http://landresources.montana.edu/soilfertility>

**Questions?**