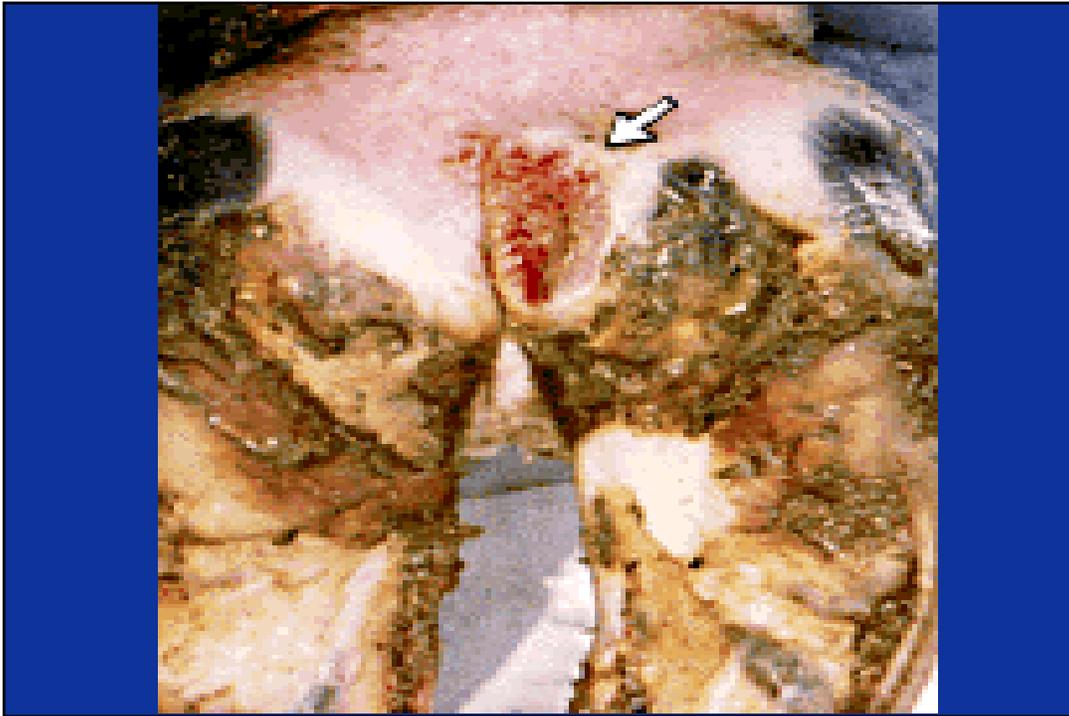


Copper Sulfate Usage of Oregon's Dairy Industry

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The reason for concern

- Studies in New York and Virginia indicated a potential problem with Cu accumulation
- Many producers who continue to use Cu without much thought
- Most crops use .1 lbs per acre a year
- We can easily estimate Cu applications could be 50-100X that with continuous footbath usage

Objectives

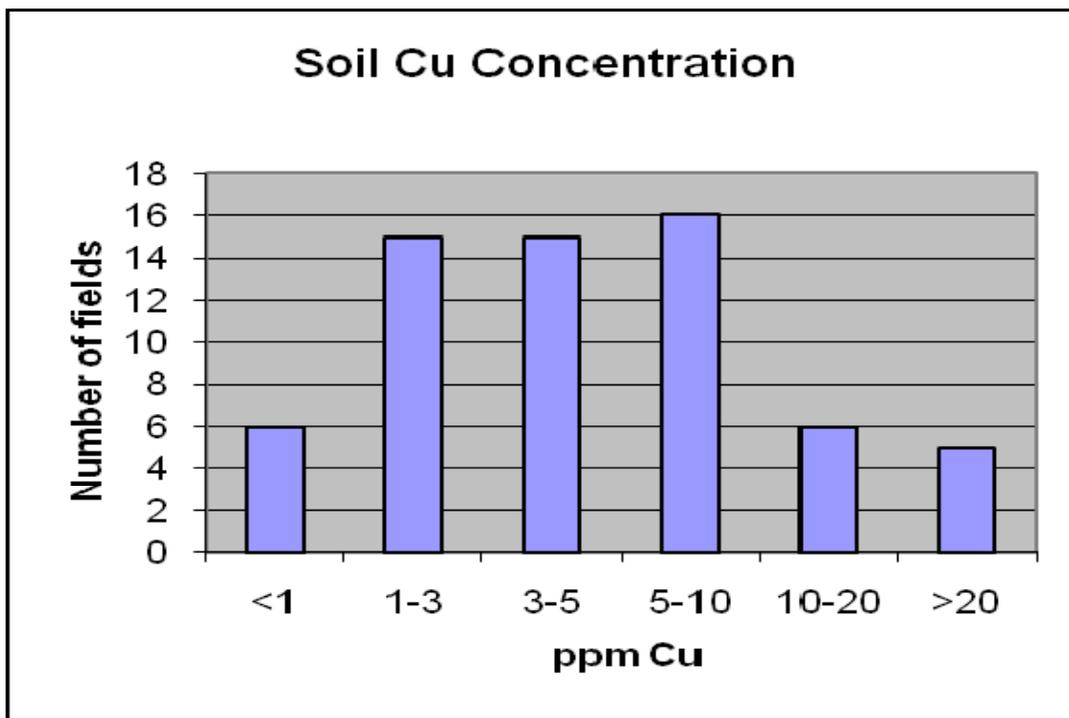
- Survey 30 dairies in the Willamette Valley and the north coast
- Gather information about footbath usage
- Determine if the use of copper sulfate and/or zinc sulfate is building in our soils
- Sample manure from cows and in manure storage
- Test farm grown forages for copper and zinc

Footbath Usage in the Study

- No footbath - 10%
- 1-3 times a week - 27%
- >50% of the time Cu used - 33%
- Zn used exclusively - 6%

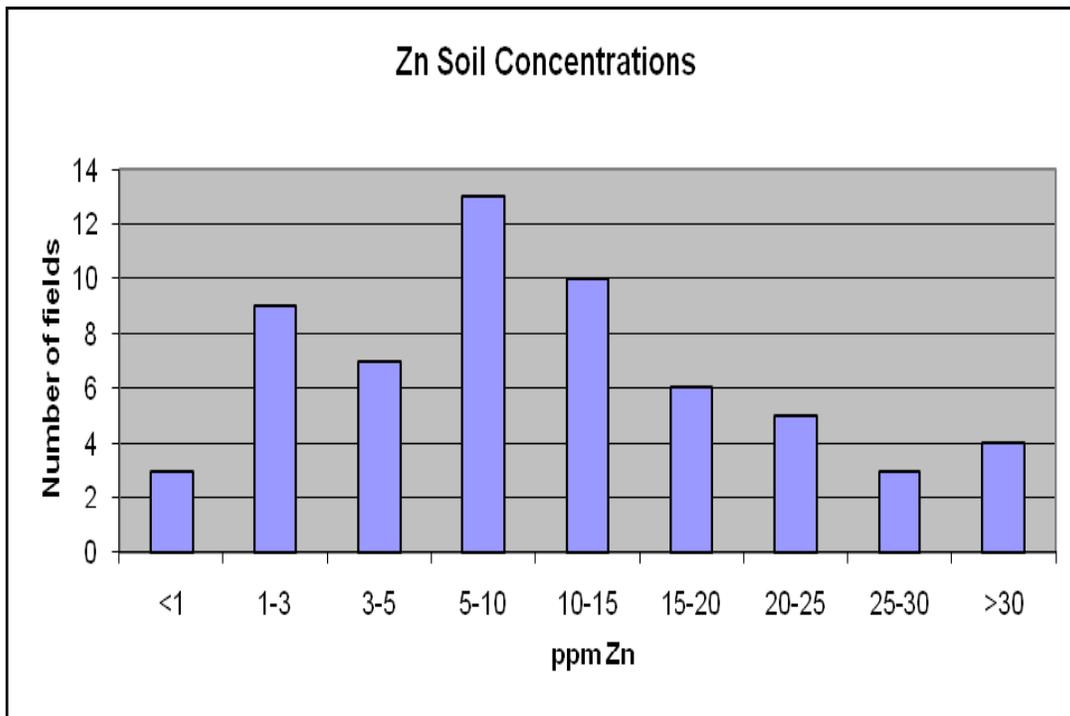
Copper Soil Results

Soils ranged	.7 to 79 ppm
Soils averaged	5 ppm
75% of soils considered high	> 2 ppm
38% of soils extremely high	> 5 ppm



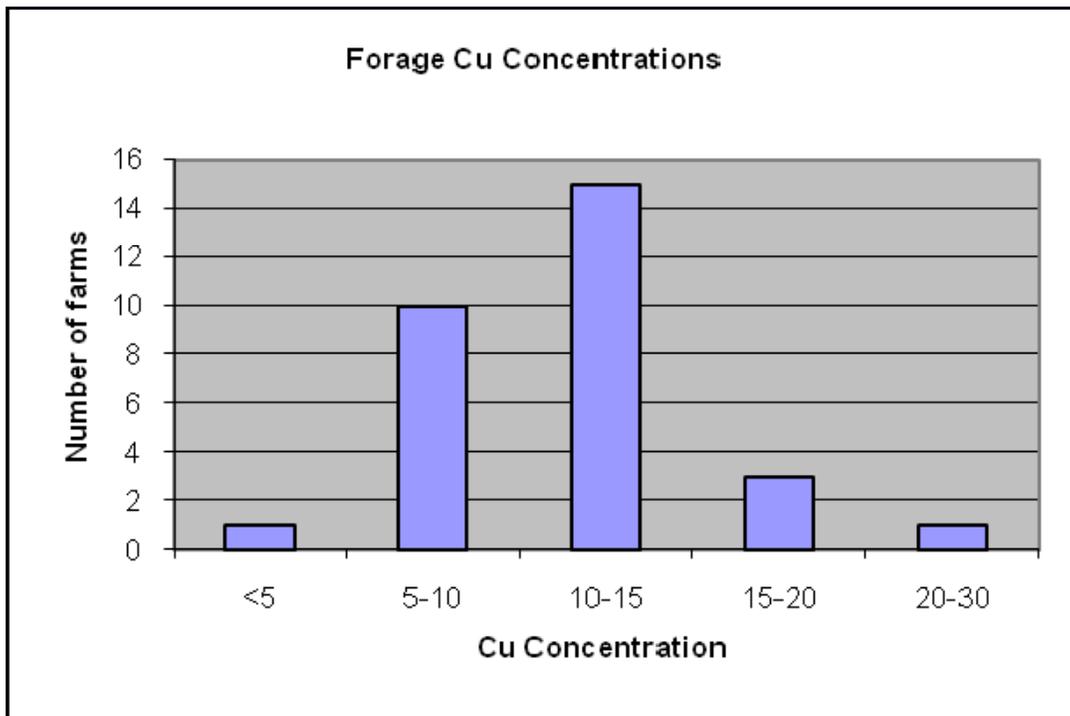
Zinc Soil Results

Soils ranged	3 to 54 ppm
Soils averaged	10 ppm
Adequate for most crops	1 ppm



Copper manure and forages

Cow manure	10 ppm
Liquid storage	2 to 58 ppm
Forages ranged	1 to 28 ppm
Forages averaged	3.5 ppm



Project Summary

- Copper is accumulating on farms using copper sulfate regularly
- Several fields were extremely high
- Forages appear to be safe at this point
- Some producers still believe copper is essential in footbaths

Recommendations

- Understand your current copper soil levels on your farm. Include copper analysis as part of regular soil testing to at least understand the current situation.
- Dispose of copper solutions across the total acres of the farm to reduce loading on smaller tracts of land.