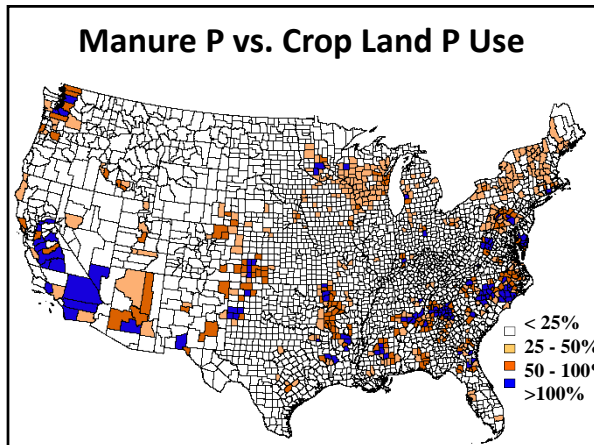


**Capturing Struvite
from Dairy Manure
- Connecting the
Broken Nutrient
Cycle**

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WASHINGTON STATE
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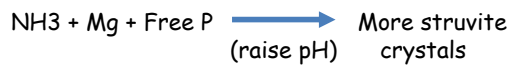
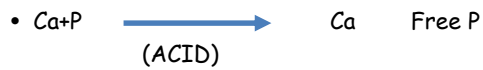


Pure Struvite N P K + Mg

6 - 29 - 0 + 16

- Slow release rate for P
- Water solubility is good, but is not prone to leaching

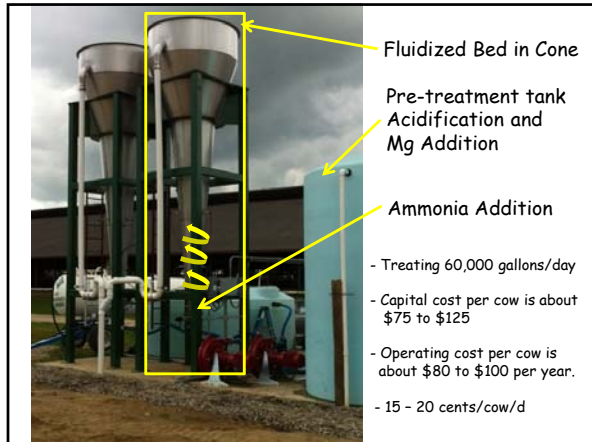
Struvite Formation Process



With low Ca manure such as swine, pH reduction is not necessary

Technology

- Struvite [MgNH₄PO₄·6(H₂O)] crystallization removes excess phosphorus (P) from livestock wastewater
- Fluidized bed with cone shape
- Lower pH with acid
- pH boost with ammonia or caustic soda
- Mg Boost with magnesium chloride
- Can be used with AD and non-AD manure systems





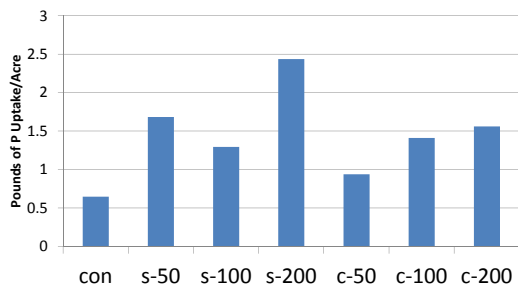


Crops Grown in Greenhouse And Field Plot Scale

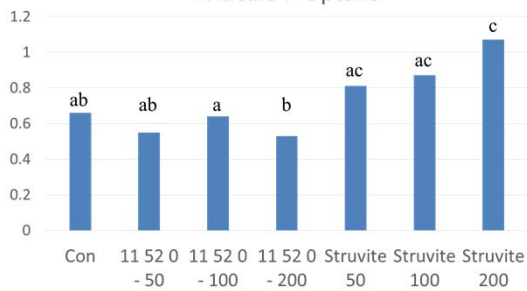
Triticale
Oats
Alfalfa
Corn

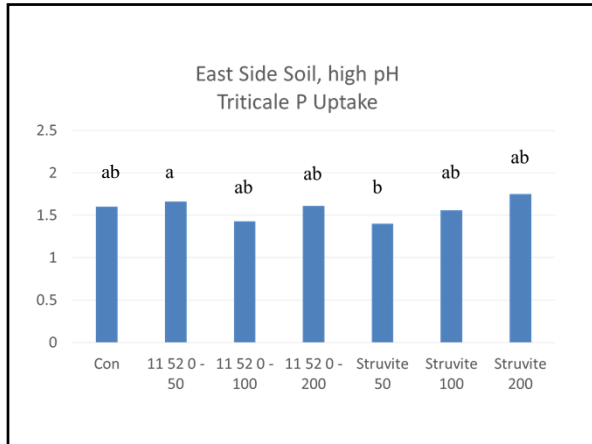


Agronomic Data Triticale - ~ 6 week growth study



Westside Soil, acid pH Triticale P Uptake















Frequently Asked Questions

- How much struvite produced per cow/day?
~ 48 grams
- How much struvite produced per 1000 gallons manure?
~ 2.6 pounds
- Cost of system - ~ \$150,000 for 2000 cow herd
~ \$60,000 for 200 cow herd