

Organic soil amendments: Biosolids



Photo: State of Michigan



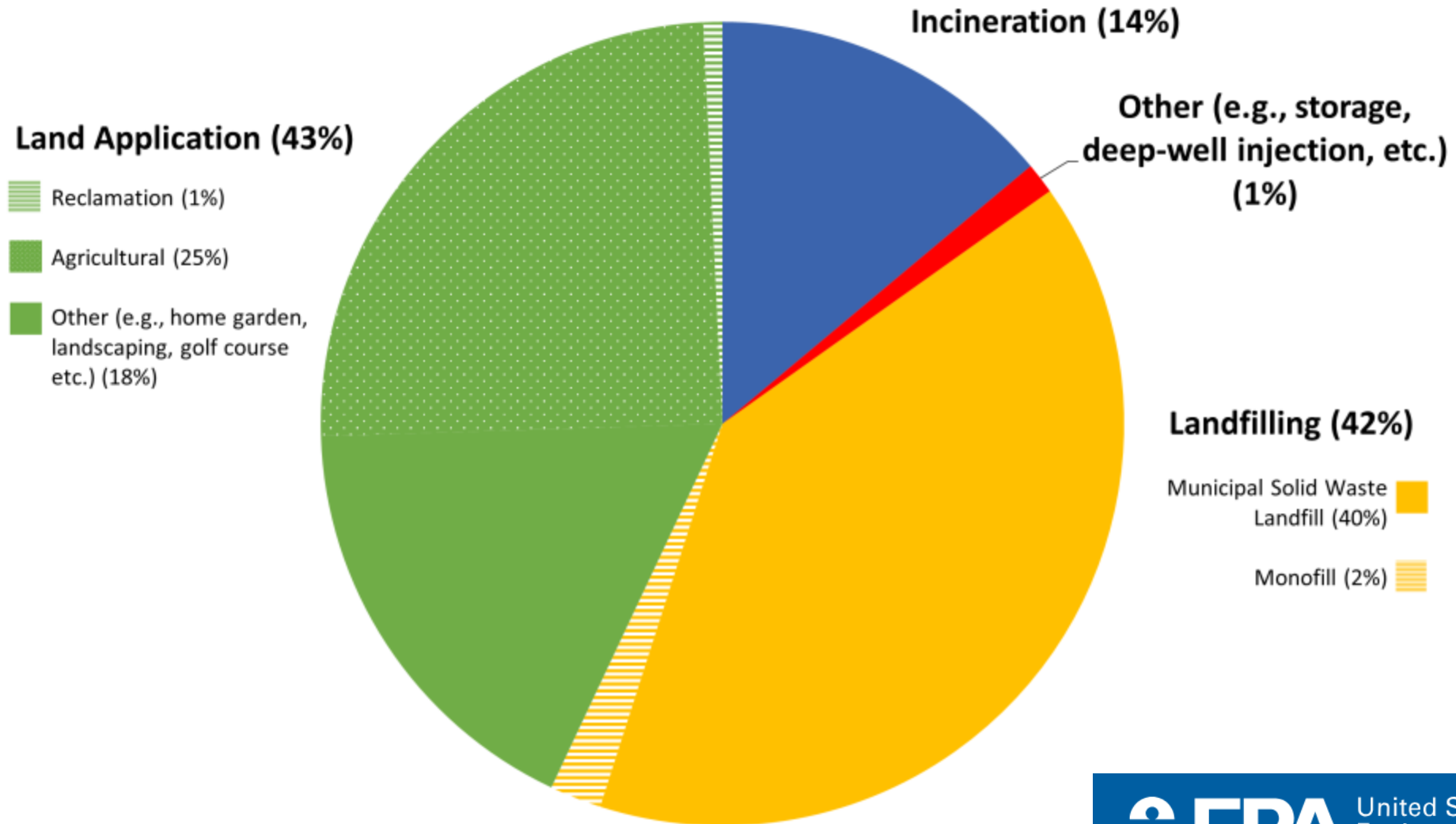
Amy King
Watershed Project Manager
Solano RCD

Biosolids definition

Biosolids are a product of the wastewater treatment process. During wastewater treatment the liquids are separated from the solids. Those solids are then treated physically and chemically to produce a semisolid, nutrient-rich product known as biosolids. The terms 'biosolids' and 'sewage sludge' are often used interchangeably.



Biosolids Use & Disposal from 2021 Biosolids Annual Program Reports



Biosolids sources



Facility at the Fairfield-Suisun Sewer District converts 100% of the solid waste to usable product (Class A fertilizer)



Biosolids sources



Facilities in Sacramento County
– sell both pelletized and wet
product

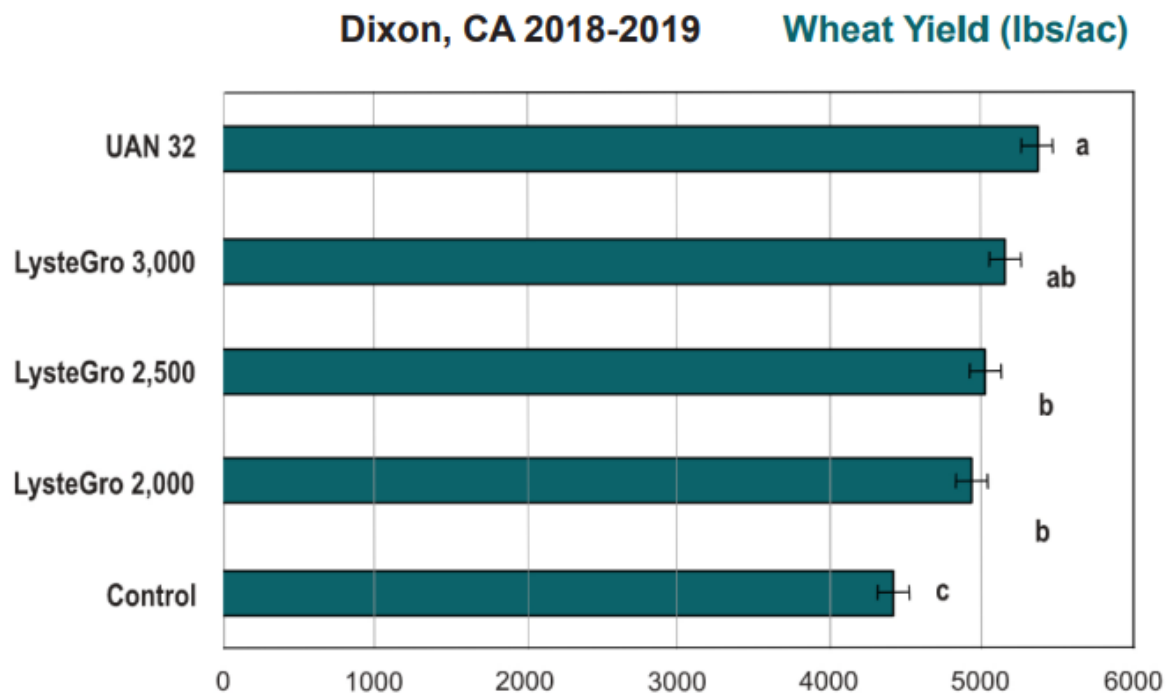
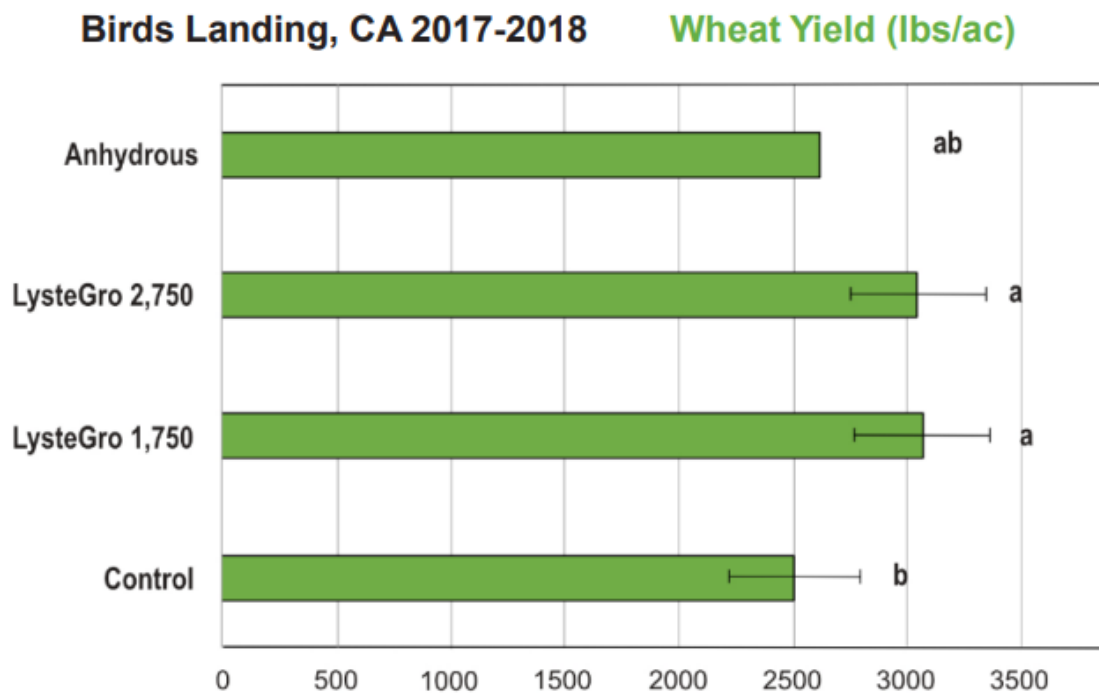
What biosolids bring to your soil system

- Biosolids are not compost! They are an organic fertilizer with a C:N ratio around 1.
- The N is tied to carbon in organic molecules upon application. Microbes break these down and release N as ammonia and nitrate.
- Biosolids contain numerous micronutrients in addition to N-P-K
- As an organic input, multi-year applications will build organic matter in the soil.
- Metered N release means less opportunity for N loss to groundwater or atmosphere.



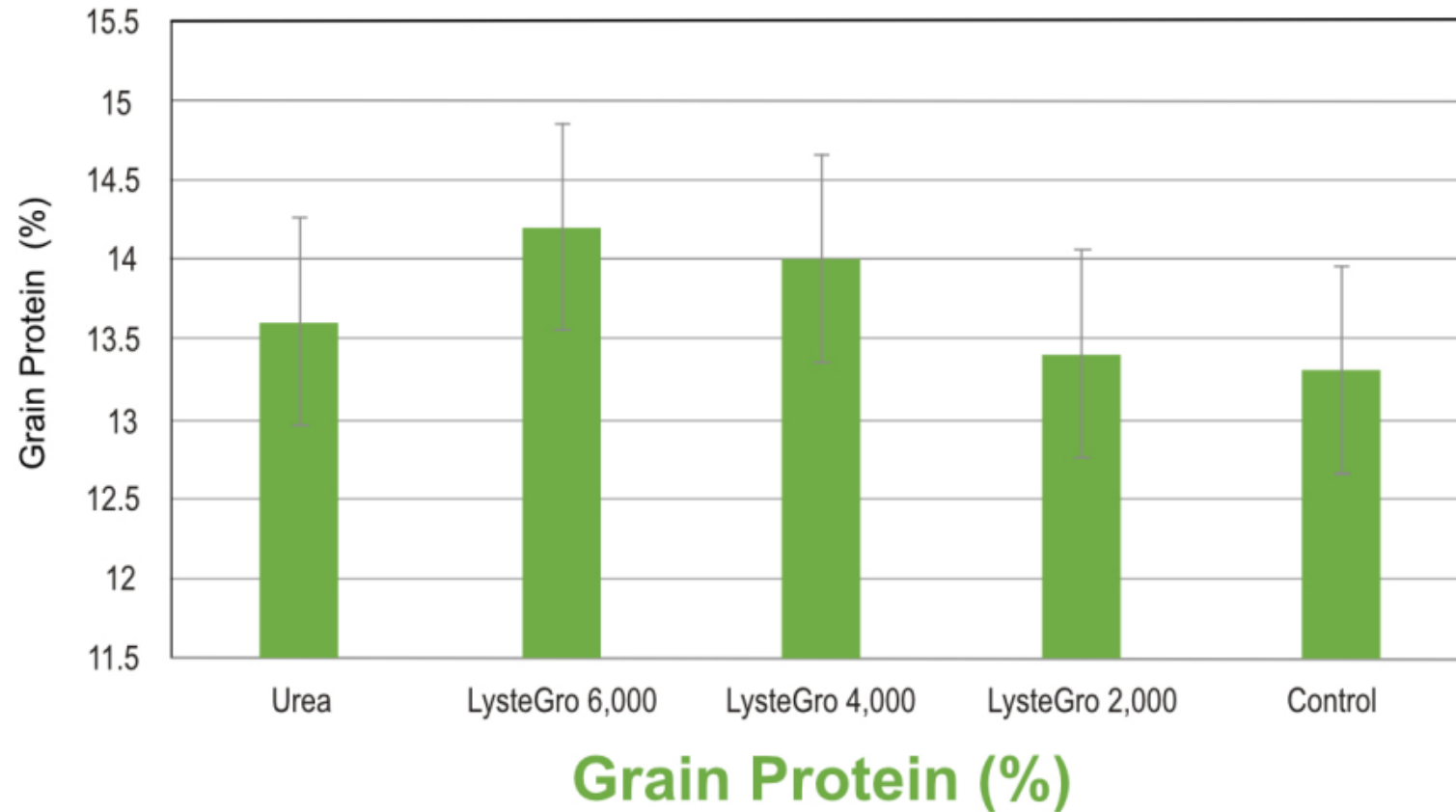
What biosolids bring to your soil system

Using Lystek's LysteGro product as an example:



LysteGro performed similarly to traditional inorganic fertilizers

What biosolids bring to your soil system



LysteGro fields had significantly higher grain N at harvest, possibly due to late season N mobilization in the biosolids

How to account for this source of N in your reporting

NITROGEN MANAGEMENT			
8. Nitrogen Efficiency Practices* (Check all that apply)	Nitrogen Sources	Recommended/ Planned N (A)	Actual N (B)
<input type="checkbox"/> Split Fertilizer Applications <input type="checkbox"/> Irrigation Water N Testing <input type="checkbox"/> Soil Testing <input type="checkbox"/> Tissue/Petiole Testing <input type="checkbox"/> Fertigation <input type="checkbox"/> Foliar N Application <input type="checkbox"/> Cover Crops <input type="checkbox"/> Variable Rate Applications using GPS <input checked="" type="checkbox"/> Other: Biosolids fertilizer <input type="checkbox"/> Other: _____	9. Soil – Available N in Root Zone (Annualized, lbs/ac)		
	10. N in Irrigation Water* (Annualized, lbs/ac)		
	11. Organic Amendments* (Manure/Compost/Other, lbs/ac estimate)		
	12. Dry/Liquid Fertilizer N* (lbs/ac)		
	13. Foliar Fertilizer N* (lbs/ac)		
	14. TOTAL NITROGEN (lbs/ac)		

How to account for this source of N in your reporting

Using Lystek's LysteGro product as an example:

N-P-K = 4.5 - 7 - 2.5

The product weighs about 8.76 lbs/gal

Applied at 3,000 lbs/ac = 1.314 dry tons/ac

At 4.5% N, this = 130 lbs N/ac



NITROGEN MANAGEMENT			
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	10. N in Irrigation Water* (Annualized, lbs/ac)	10	8
	11. Organic Amendments* (Manure/Compost/Other, lbs/ac estimate)	150	130
	12. Dry/Liquid Fertilizer N* (lbs/ac)		
	13. Foliar Fertilizer N* (lbs/ac)		
	14. TOTAL NITROGEN (lbs/ac)	160	138

Questions or suggestions welcomed!

Amy King

Solano Resource Conservation District

Watershed Project Manager

530-848-3551

Amy.King@solanorcd.org

1170 N. Lincoln Street, Suite 110

Dixon, CA 95620

707-678-1655 x101



SOLANO

Resource
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