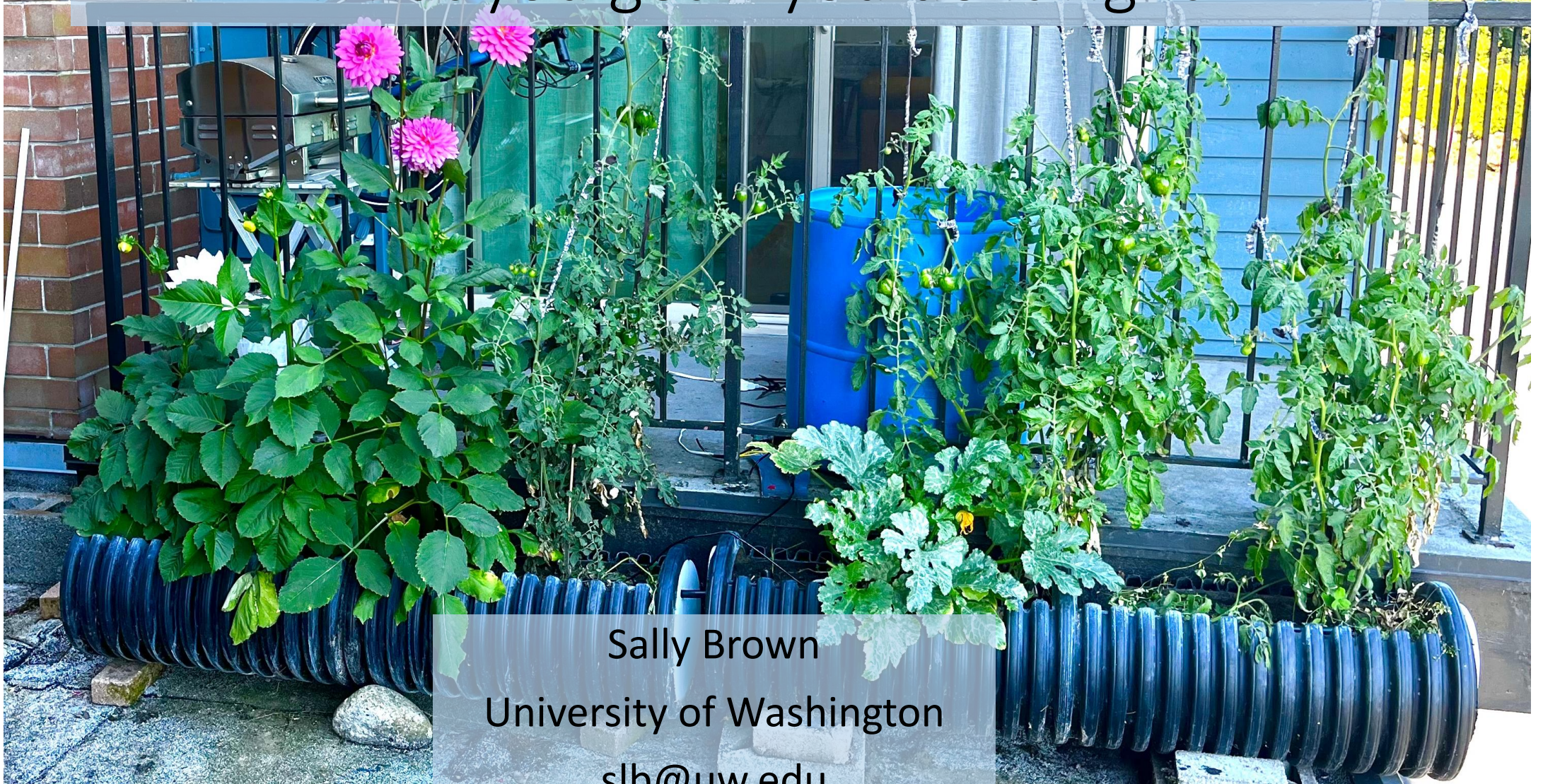


# Developing urban markets for biosolids

## What you get if you do it right



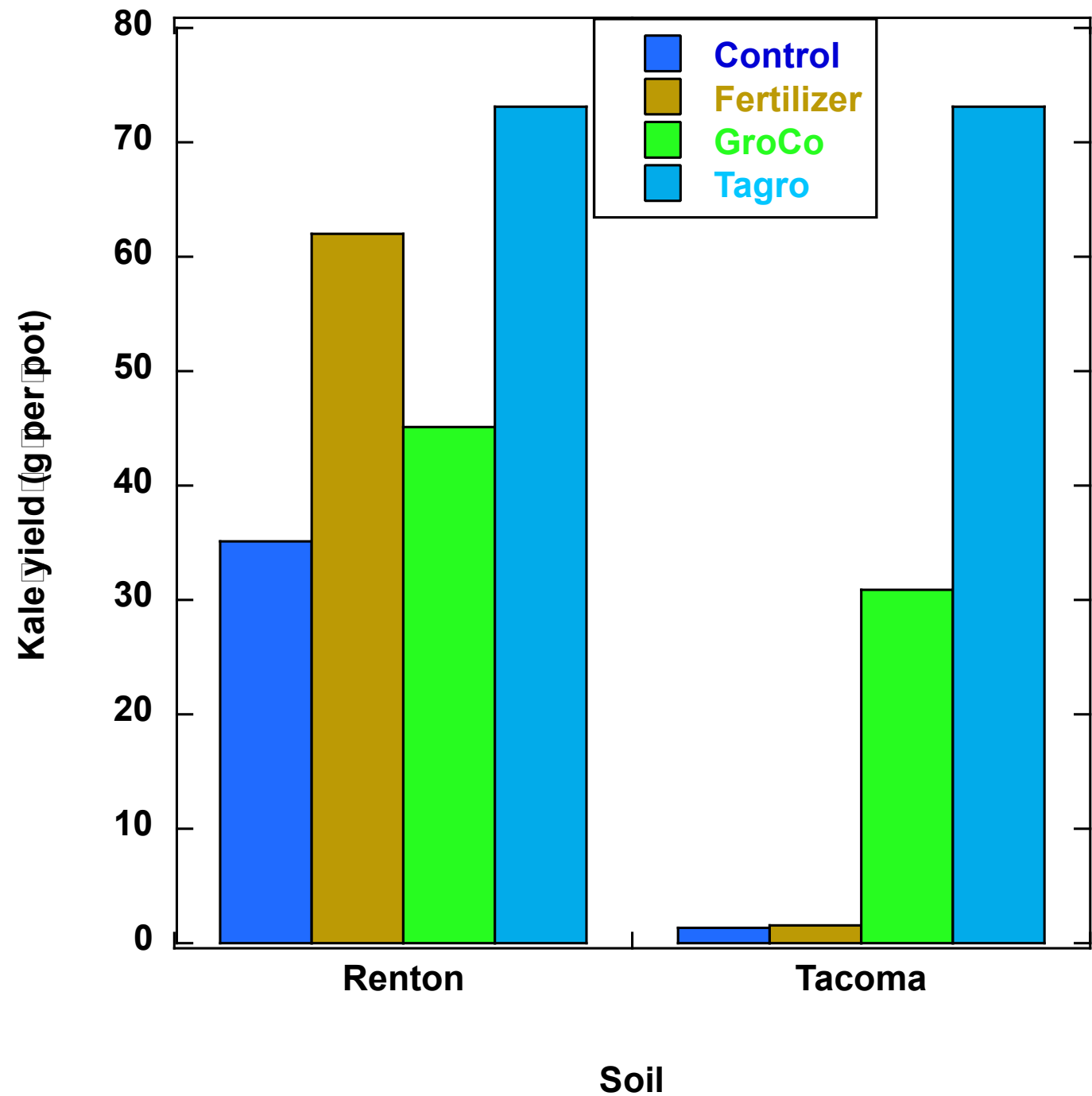
Sally Brown  
University of Washington  
[slb@uw.edu](mailto:slb@uw.edu)



# Biosolids can work miracles- Some more than others



Not all biosolids  
products are  
created equal  
Una et al., 2022

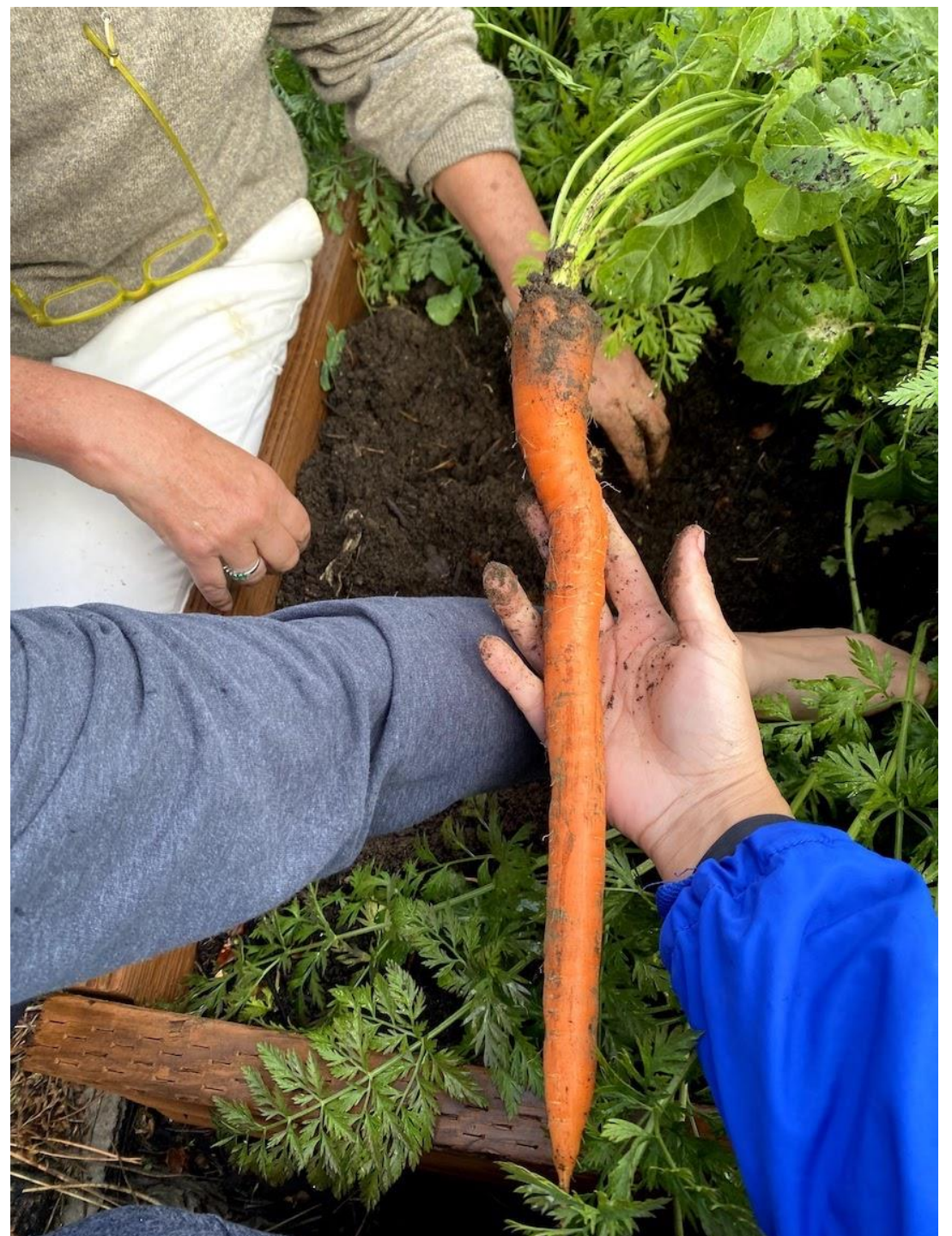




# If you want a broad customer base

## First and fundamental

- Make a product that:
  - Looks good
  - Smells good
  - Works good





Research on product development:

- \*Forget contaminants
- \*Focus on petunias





Tagro Mix



Compost



Yard waste 100



Walnut char blend



## TECHNICAL REPORTS

Waste Management

# Creating topsoils and soil conditioners from biosolids and urban residuals

Ryan Batjiaka | Sally Brown 

Journal of Environmental Quality

Then you have to talk about it in a way that shows that you have pride in product

## COMMUNITY ENGAGEMENT AT TAGRO

- TACOMA'S HOME AND GARDEN SHOW
- RELATIONSHIP WITH WSU MASTER GARDENERS
- DEMONSTRATION GARDEN
- FREE PILE FOR 'YOU SHOVEL IT YOURSELF'

From Kristen McIvor





# You have to identify others with common interests

[Home](#) › [What We Do](#) › Urban Agriculture

## HARVEST PIERCE COUNTY



Welcome to the rich world of growing, sharing, and harvesting food! **Did you know that Pierce County boasts a network of over 80 community food projects?** In addition to these gardens, orchards, and food forests, the community is working to build strong webs of food security through volunteer efforts like the Gleaning Project and Share the Harvest. Citizens are coming together with the belief that everyone deserves access to fresh, healthy, and affordable produce.



From Kristen Mclvor

## **FREE SOIL AMENDMENTS**

Class A biosolids - Tagro mix,  
Tagro Potting soil, also  
Woodchips and cardboard for  
pathways.

## **FREE WOOD FOR RAISED BEDS**

Recycled stop sign posts are  
made available if groups don't  
have other resources for bed  
building

## **FREE SOIL TESTING IF NEEDED/DESIRED**

Soil testing can be done in to  
look for elevated levels of  
metals - most gardeners prefer  
raised beds.





From Kristen McIvor

**90**

Number of community gardens today - up from 6 in 2006

**61**

Number of different property owners involved

**147,880**

Number of households that live within 1/2 mile of a community garden (1 mile in rural areas)



From Kristen Mclvor



## ORGANICS RECYCLING - 2021 CUBIC YARDS

**1120**

YARDS OF TAGRO

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**947**

YARDS OF COMPOST

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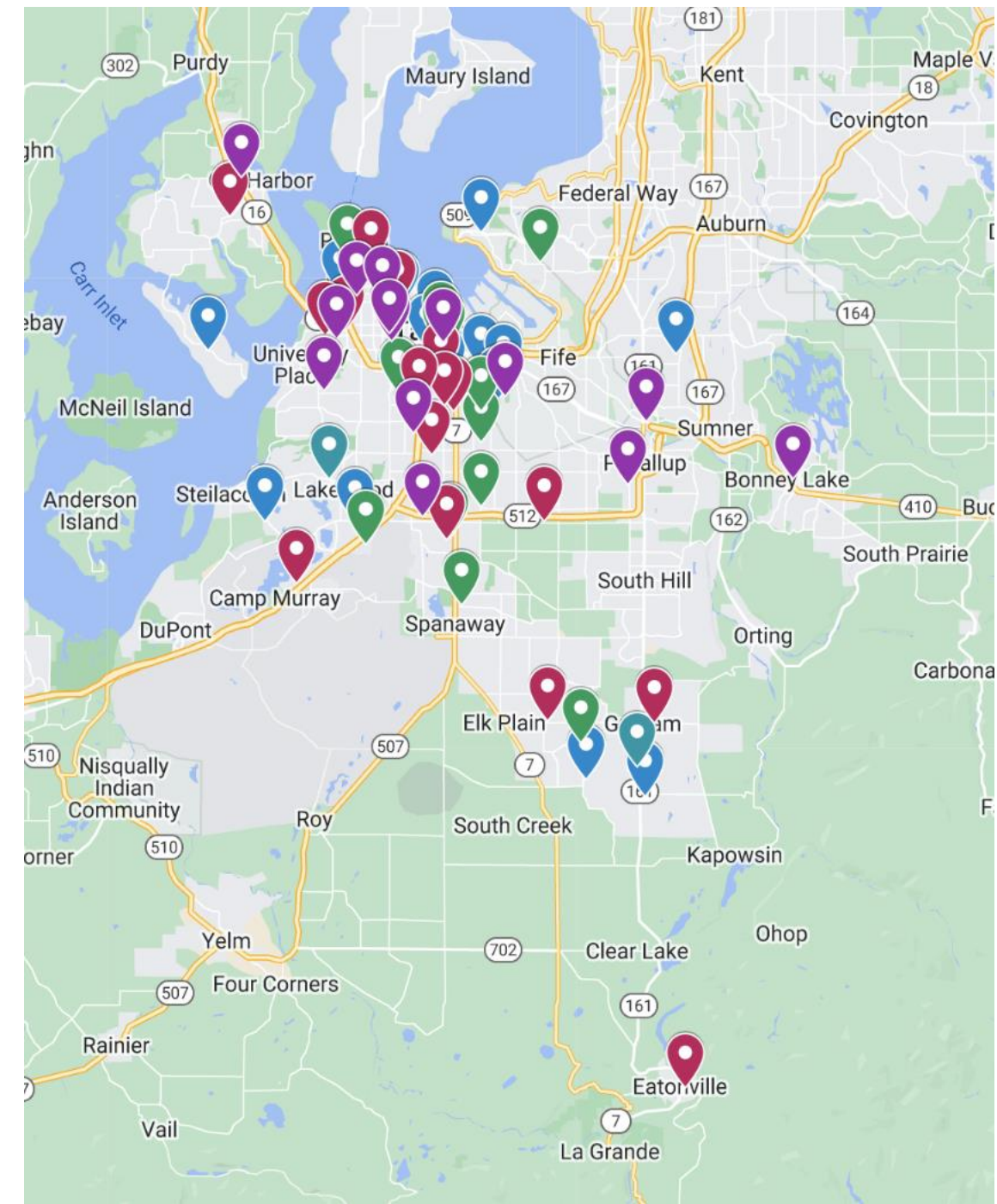
**561**

YARDS OF WOODCHIPS



# Tagro, Tacoma

- Map of community gardens in Harvest Pierce County program
- Mean # of plots per garden=25
- Each garden gets Tagro delivered
- $80 \text{ gardens} \times 25 \text{ plots} = 2000 \text{ customers}$



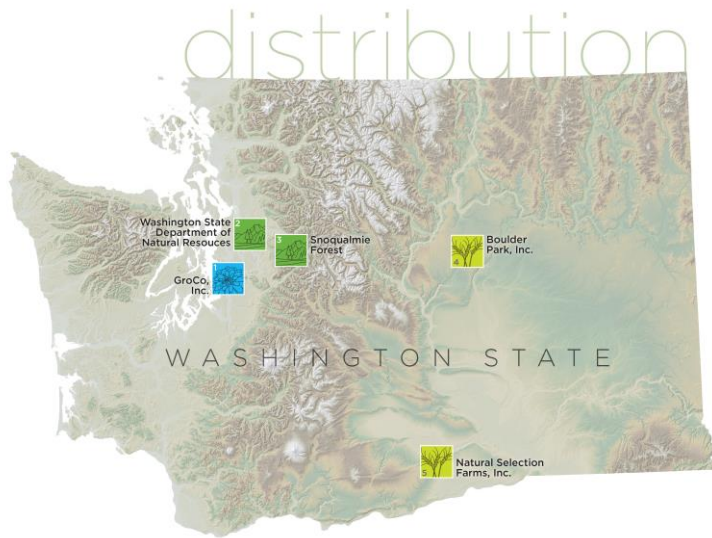


Tagro RAN OUT in 2018 and 2020  
Costs are < \$25 per wet ton

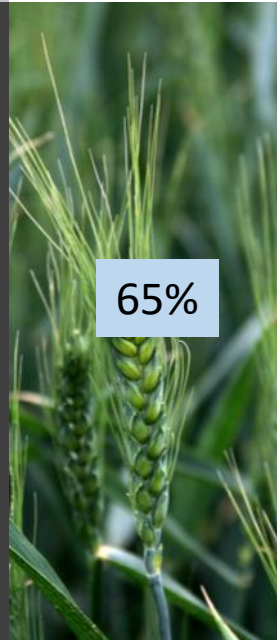




King County, Class B  
Loop biosolids  
Costs > \$200 per wet ton



How Loop is used



65%

Agriculture



35%

Forestry



Land  
Reclamation



Urban  
Gardening

# Following in Ryans' footsteps

- Anna Beebe developed compost blends with different feedstocks for King County biosolids
- They will be making a compost product and wanted to test for optimal blends





Top: Tagro, Urban 1, Urban 2, Forest H+BC, Forest H  
Bottom: Forest L, Groco, Control+Fert, Control





## Why it's time to talk about poo

Is it only Tacoma?

DC Water recently changed their treatment process and has a Class A biosolids product as a result  
They followed the lead of Tacoma and King County for branding and outreach



*The fertiliser product Bloom is made from the output of sewage plants in Washington DC  
(Credit: Lina Zeldovich)*



# New Equipment = Marketing Opportunity



# Bloom Timeline



- First product from digesters: November 2014
- First Distribution (free sample): November 2015
- First product sale: August 2016
- First Distribution & Marketing permits: November 2016
- Bloom trademark registered: January 2017
- First daily production sell-out: April 2018 (450 wt)
- First bagged product in stores: May 2018
- First month sellout: April 2019
- Sales team expansion: November 2019
- Broke \$1M in savings and revenue: 2020



# They also invested in research

RESEARCH

## Biosolids-Based Amendments Improve Tall Fescue Establishment and Urban Soils

Mike J. Badzmierowski,\* Gregory K. Evanylo, Erik H. Ervin, Adam Boyd, and Carlyle Brewster

Urban Agriculture &  
Regional Food Systems

OPEN  
ACCESS



Original Research | [Open Access](#) |

## Biosolids Improve Urban Soil Properties and Vegetable Production in Urban Agriculture

Odiney Alvarez-Campos✉, Gregory K. Evanylo

Journal of Environmental Quality

TECHNICAL REPORTS

URBAN POLLUTANTS

## Nutrient, Metal, and Organics Removal from Stormwater Using a Range of Bioretention Soil Mixtures

Julia G. Jay, Megan Tyler-Plog, Sally L. Brown,\* and Fritz Grothkopp





# Bloom Products

- **Fresh Bloom:**
  - Biosolids straight from process
  - Good for farming, construction, blending application
  - Product slinkiness, limits use in home gardening.
- **Cured Bloom (100% Bloom):**
  - Dried/windrowed material
  - Granular, easy to use
  - Higher nutrient content
  - Requires space and labor to produce
  - Lawn, landscape, home gardens etc
- **Blended Products**
  - Woody Blend (compost substitute)
  - Sandy Blend (preferred topdress)
  - Same end users as Cured Bloom







# What Bloom Customers Grow



Hay Farm



Horticultural Society



Golf Course



Hobbyist Vintner/Grape Grower



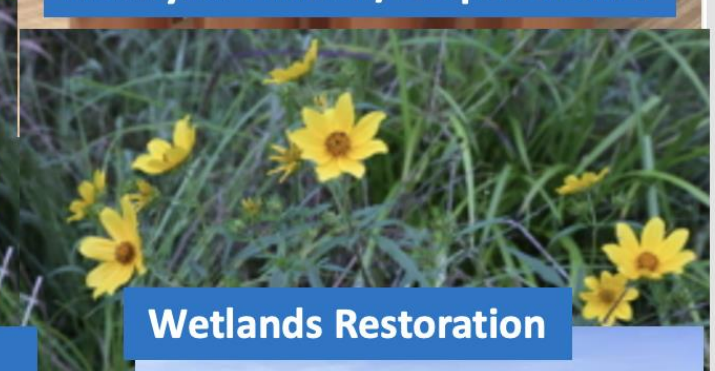
Cut Flower Farm



Street Tree Plantings



Elementary School Garden



Wetlands Restoration



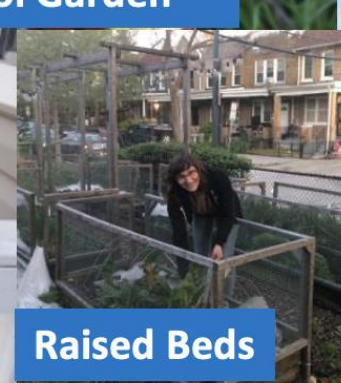
School Landscaping



Hops Farm



Home Veg Gardens



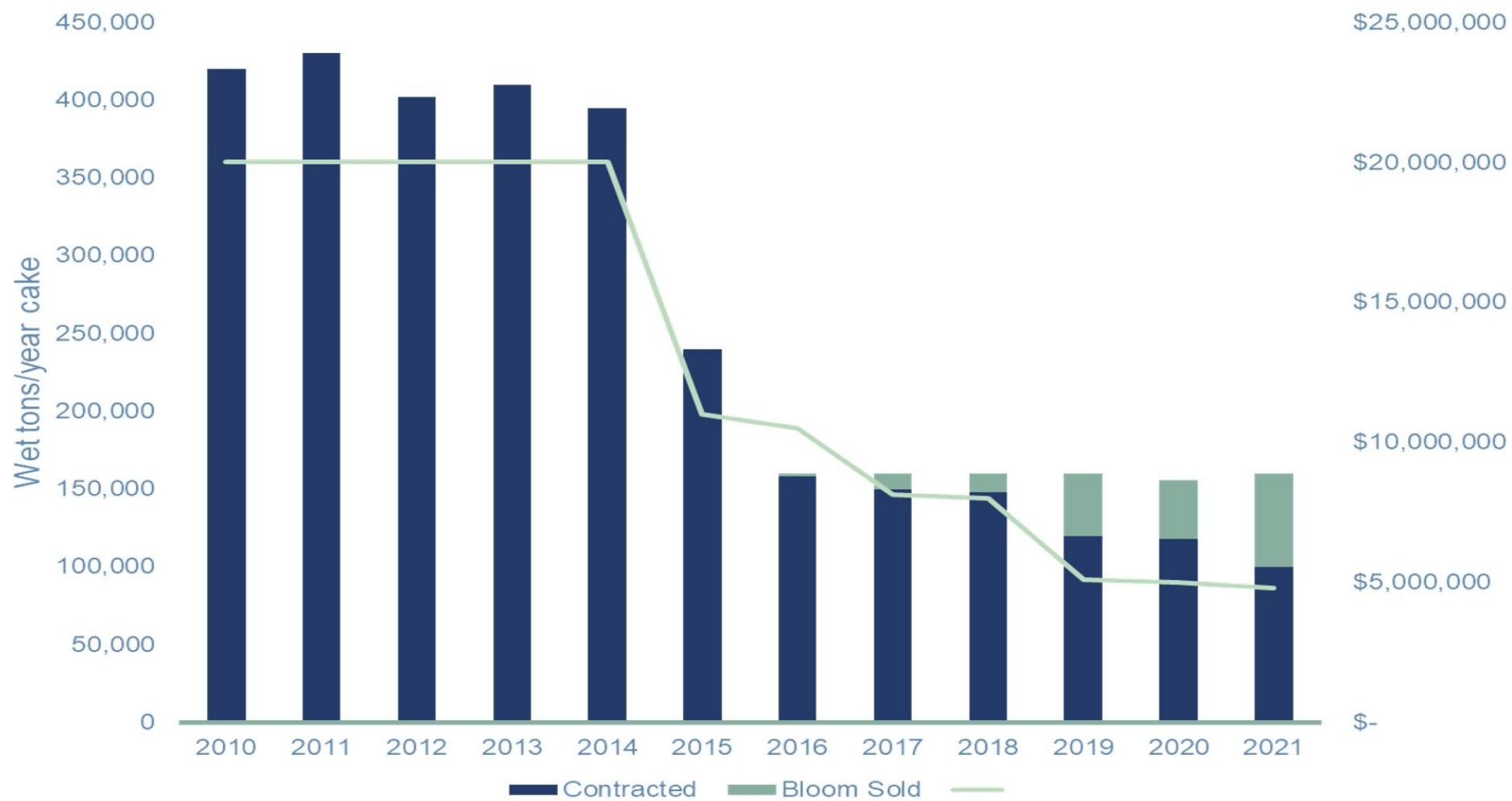
Raised Beds



Commercial Corn



# At DC, Biosolids costs reduced from \$19M to \$4.8M annually





# Urban uses

- Vastly expands your customer base
- Buys you resilience and advocates within your district
- Saves your utility money

