



Status of facilities and feedstocks - statewide

Organics/Methane Stakeholder Group

Heather Trim

Zero Waste Washington

August 19, 2021

New Report



Improving Organic Materials Management in Washington State

An Assessment of the Barriers and Needs of Organic Waste
Management Facilities in Washington State

Zero Waste Washington

May 2021



Capacity & Markets Expansion

- Connect RNG facilities to pipelines & e-grid
- Fund pilot strategies, such as co-digestion
 - Expand markets for organics products
 - Incentivize anaerobic digestion
 - Foster community-based composting

Standards Improvement

- Update toxics list
- Set standards for digestate application
- Make spreading equipment available
- Require compostable foodservice products to be distinguishable

Performance Improvement

- Industrial symbiosis: Use excess steam for apple maggot
- Increase (training) requirements
- Update the state's manual

Systemic Changes

- Price GHG emissions
- Foster biogas markets
- Ban organics in landfills
- Ban clopyralid and other herbicides
- Expand renewable portfolio
- Increase landfill tipping fees

Innovation Support

- Create an innovation center
- Incentivize anaerobic digestion projects
- Encourage new technologies
- Fund facilities that manage food waste
- Fund purchase of products

Permitting Revision

- Coordinate permits
- Establish VOC emissions testing standards
 - Increase funding for training & monitoring
 - Define standard odor measurement methods
 - Proactively define zoning for organics facilities
- Focus compliance on key performance indicators

Contractual Processes Improvement

- Standardize government contracts
- Set bid preferences for RNG for heavy duty vehicles
- Incentivize & sanction for better source separation
- Pilot Pay-As-You-Throw based on weight not volume

Collaboration Improvement

- Establish policy working group
- Require education in contracts
 - Define compostable products
 - Improve data

Policy Road Map

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Improving Organic Materials Management in WA

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Composting Facilities

58 permitted composting facilities
located in **28** counties (out of 39)
processed **1.28** million tons (2018)

Anaerobic Digesters

42 anaerobic digesters producing biogas from organic materials
33 at wastewater treatment facilities and
9 farm-based
44,467 tons/ year through 2017

Other: Vermiculture, Black Soldier Flies, Land Application sites

There are **15** permitted land application

Incineration & Energy Recovery

<**12** tons/day

Landfills

14 landfills which received **4.03** million tons of municipal solid waste (2017).
Total includes both organic and inorganic waste.

What remains: Organics = 1,306,136 tons/yr. (28.5%)
of disposed materials by weight
Food waste = 17% (796,094 tons)

Feedstock generated: West & East



Barriers



Funds



Emission factors



Skepticism/contamination



Clopyralid



Silos/Awareness



Apple maggot



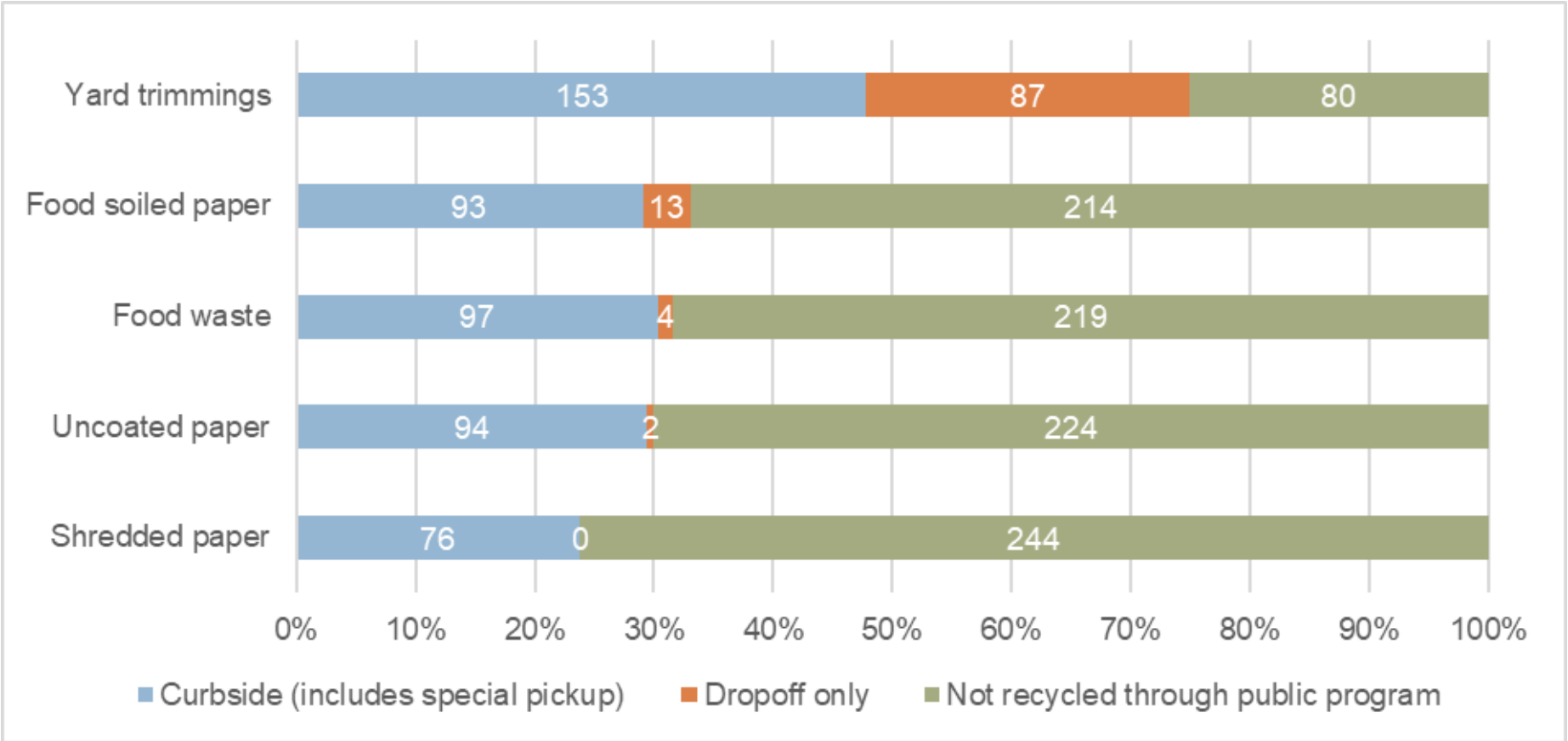
Equipment



Regulatory consistency

Type Of Organics Collection by Jurisdiction (Count And Percentage Of Jurisdictions)

As of October 1, 2019

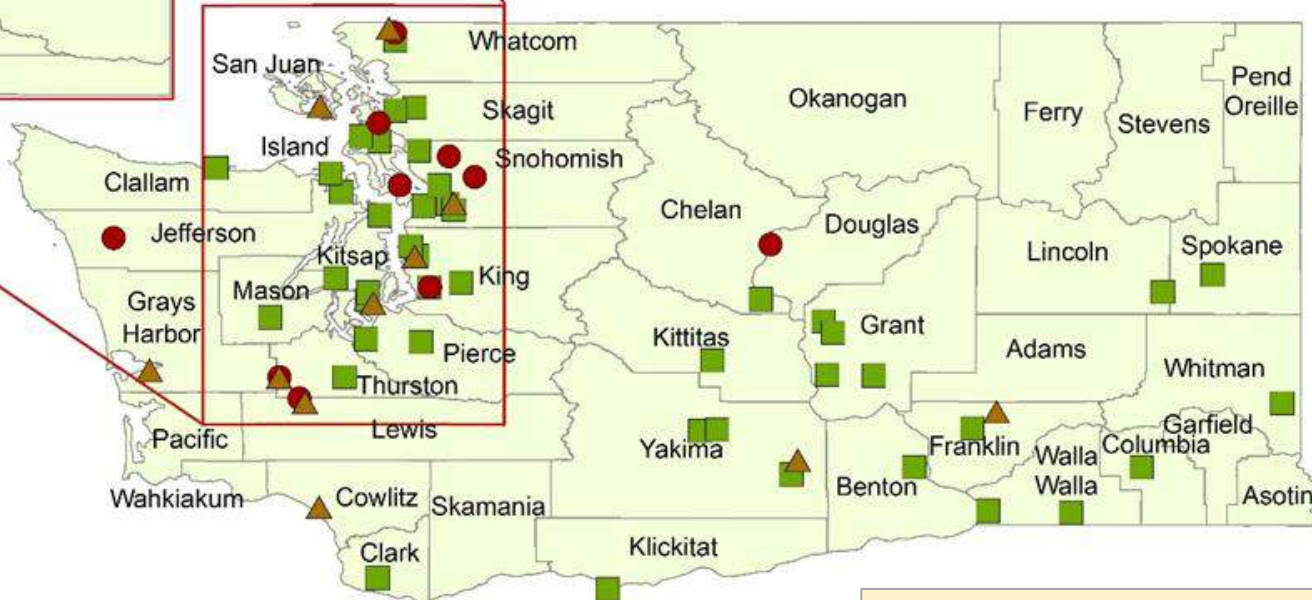
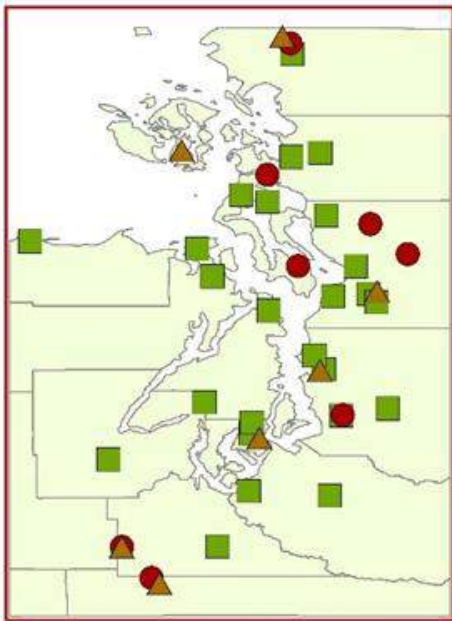


Permitted Compost Facilities

- 58 permitted facilities (2019)*
 - 45 facilities regulated under WAC 173-350-220
 - 13 facilities that manage biosolids, regulated under WAC 173-308

* Farms, nurseries, community gardens, and home composting are allowed to operate as a solid waste permit-exempt facilities (per WAC 173-350-220). Farms that compost on-site up to 1,000 cubic yards at any one time are exempted from reporting if that compost is not distributed off-site.

Locations

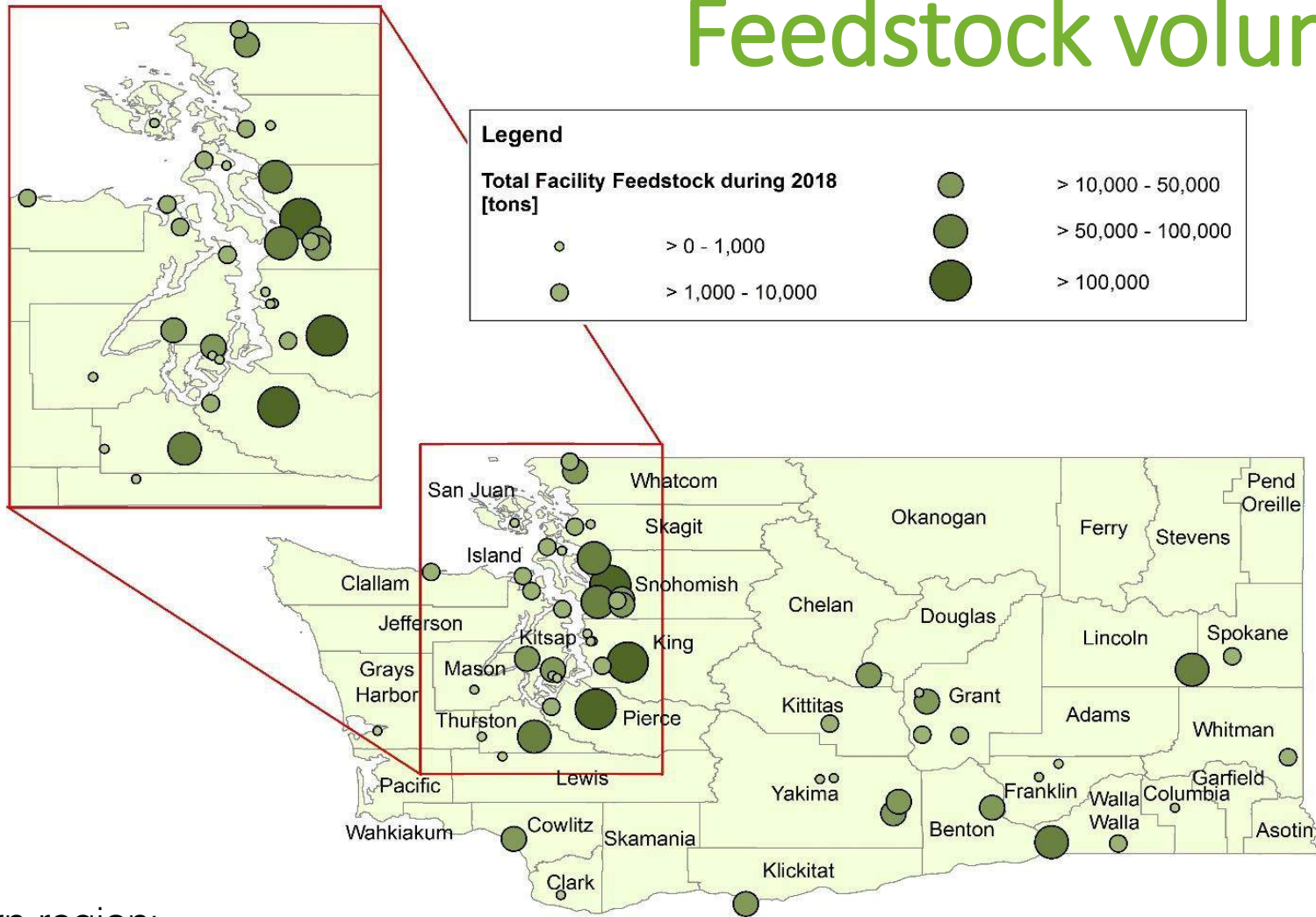


Industrial composting facilities:

- 26 in the western region
- 18 throughout eastern counties
- 9 permit-exempt compost facilities are in the western region & 2 in the east.

11 counties did not have composting operations reporting to Ecology during 2018

Feedstock volumes



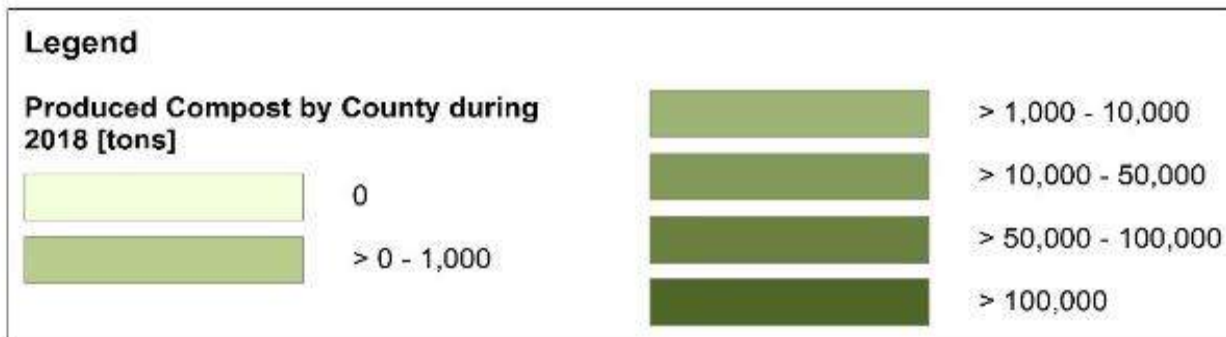
Western region:

- 3 facilities that processed >100,000 tons of feedstock and
- 3 of 5 facilities that processed 50,000 - 100,000 tons

East: Largest operations in Lincoln Co (84,251 tons) and Walla Walla Co (61,020 tons)

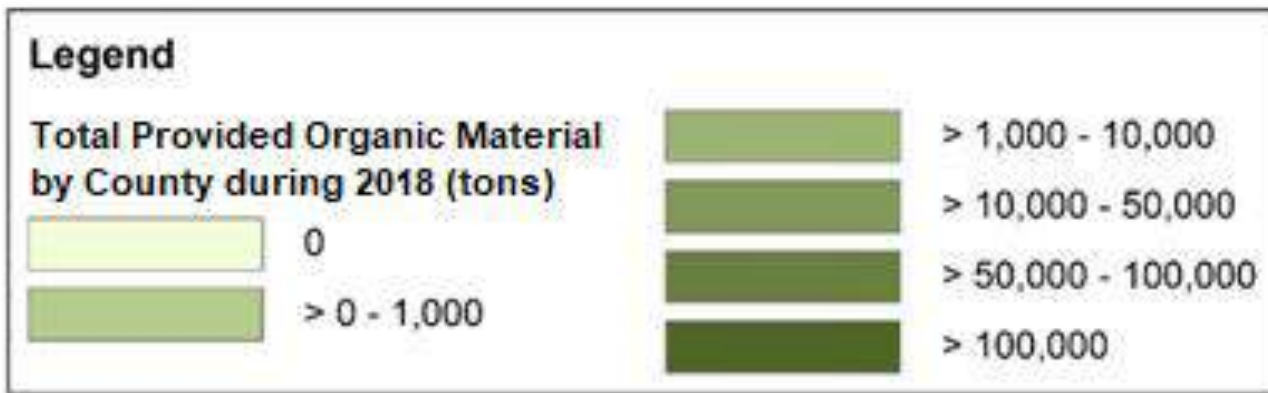
Composting facilities reporting to Ecology for the year 2018. Data adopted from Ecology (2019b) Does not include biosolids facilities.

Feedstock volumes processed by county



WA's 10 highest-volume compost facilities (all but 2 are located in west) create 80% of the state's produced compost.

Feedstock provided by county



Feedstock provided by county



Mixed Yard Debris and Food Waste



Yard Debris Only



Manure and Bedding



Food Processing Waste (Pre-Consumer)

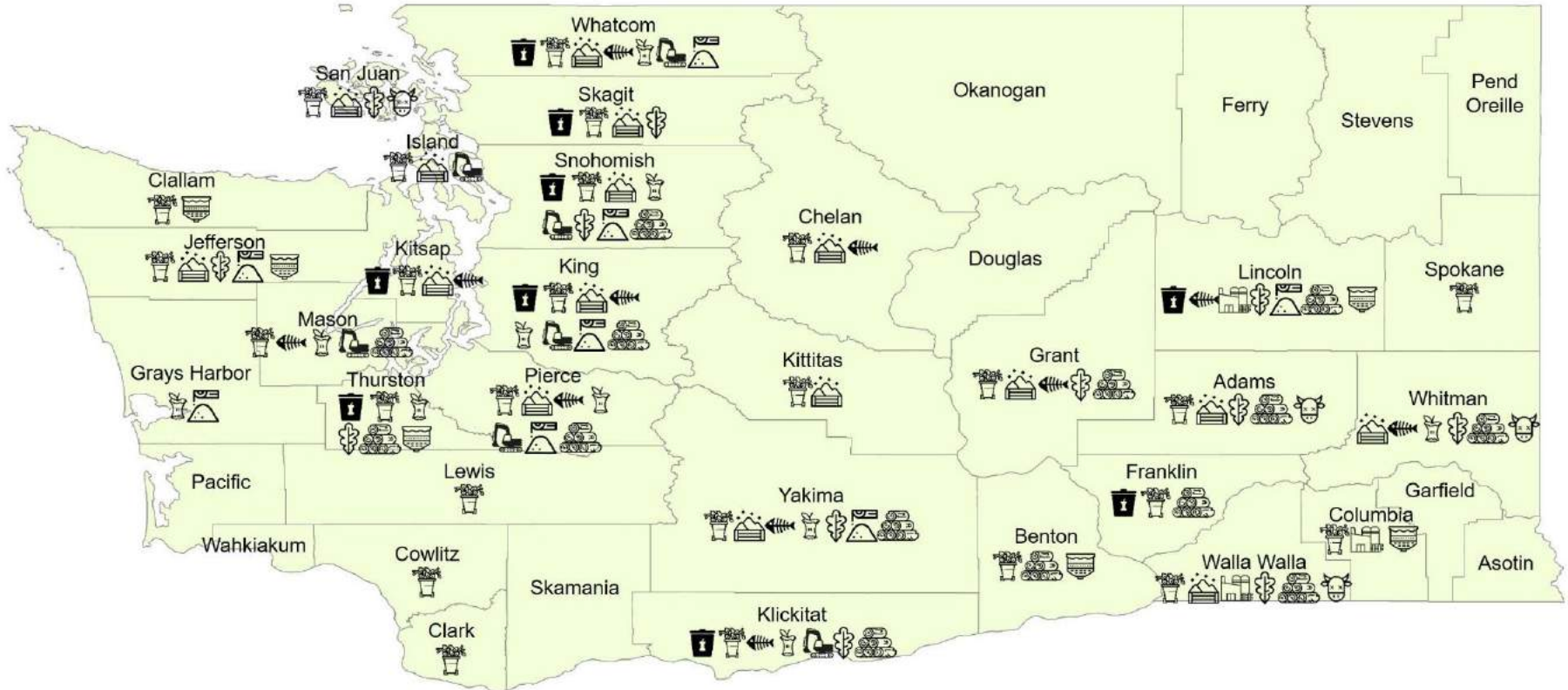


Food Waste (Post-Consumer)



Total Food Waste

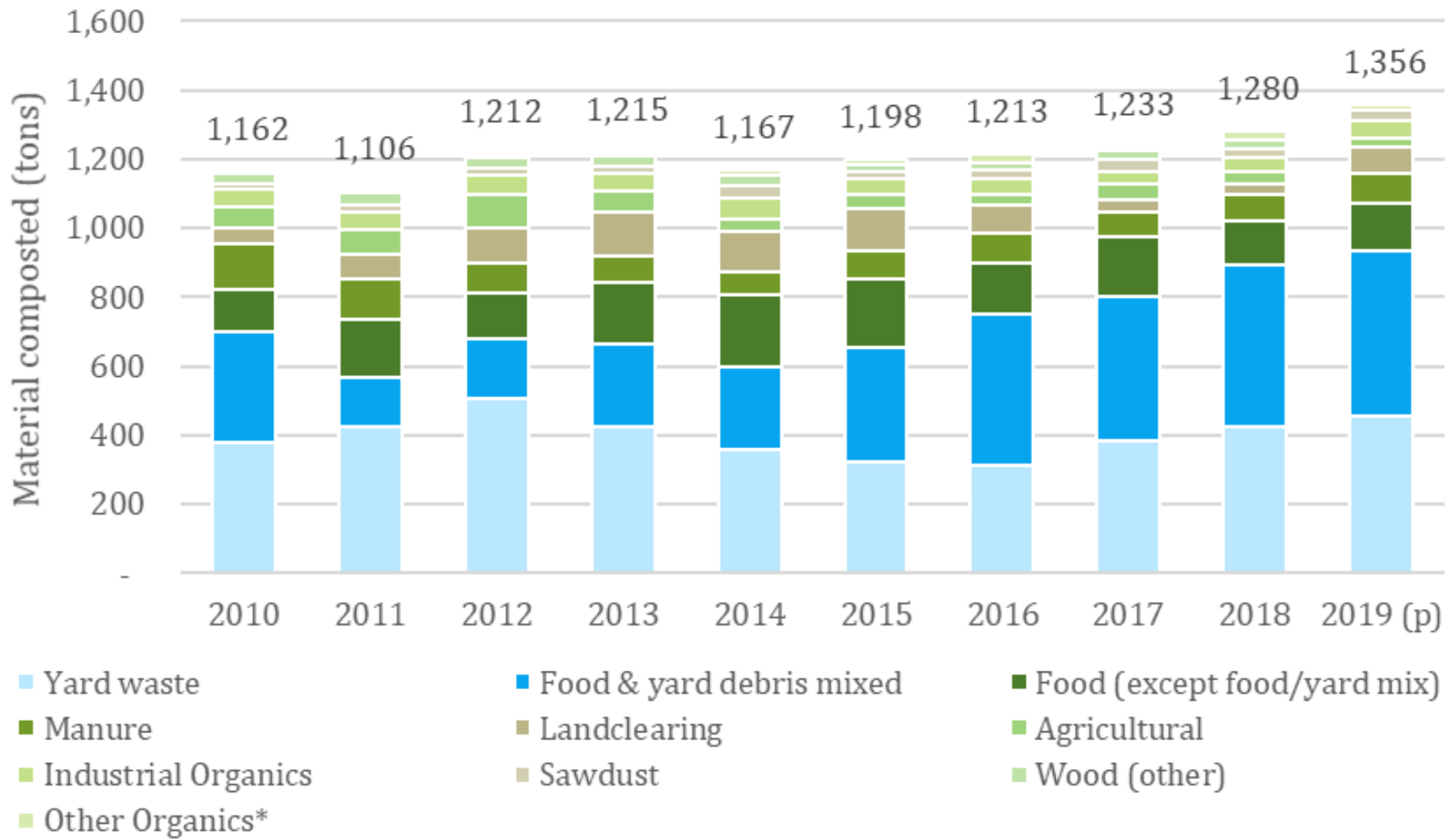
Feedstock types processed by county



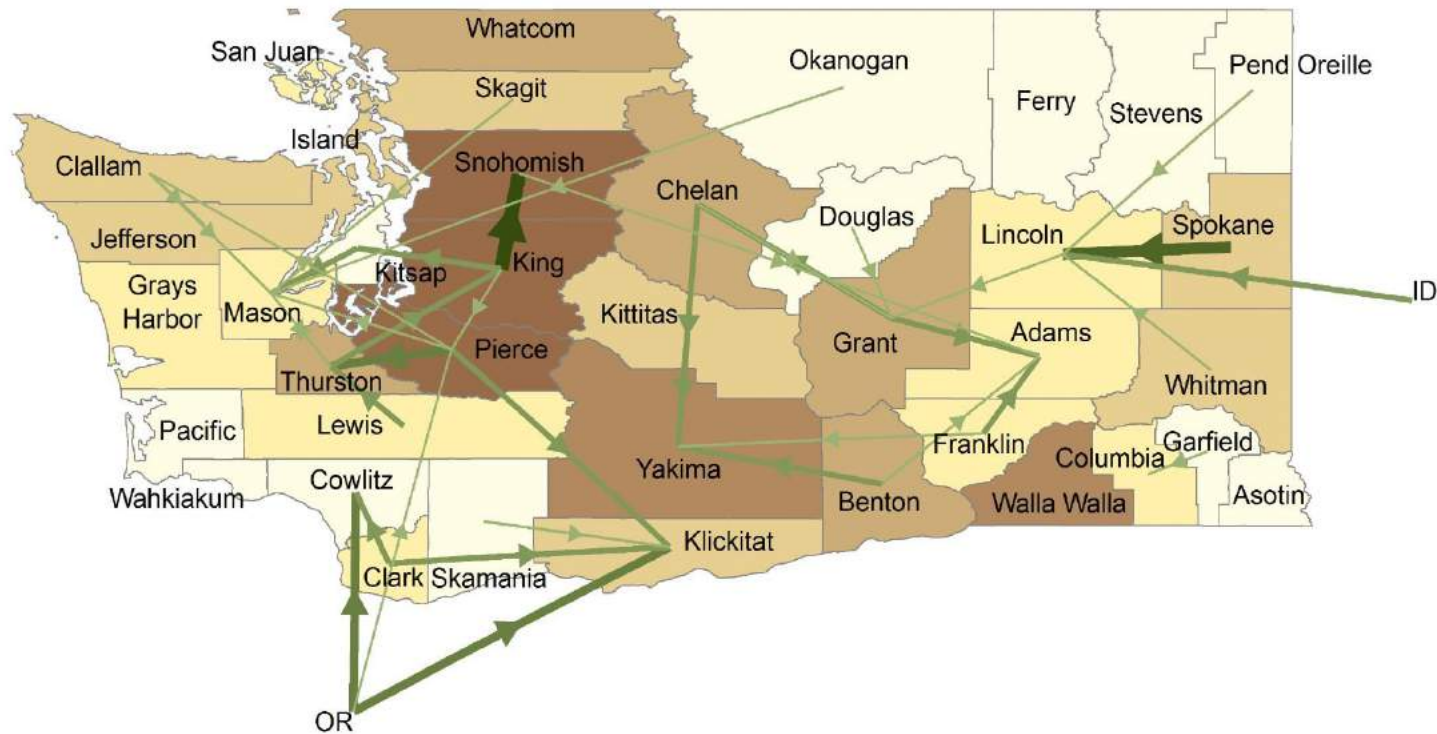
	Agriculture Organics (Vegetative)		Industrial Organics		Sawdust / Shavings
	Biosolids, Dry		Landclearing Debris		Wood Waste
	Food Processing Waste (Pre-Consumer)		Manure and Bedding		Mixed Yard Debris/Food Waste
	Food Waste (Post-Consumer)		Mortalities and Animal Parts		Yard Debris

28 of 30 counties have facilities processing yard debris
 9 counties have facilities that accept mixed yard debris and food waste

Feedstock volumes over time

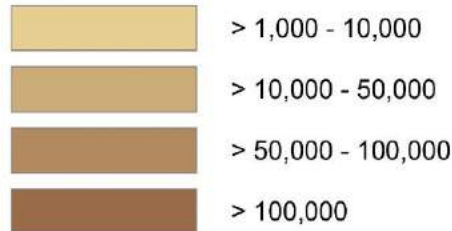


Flows: in county and from outside county

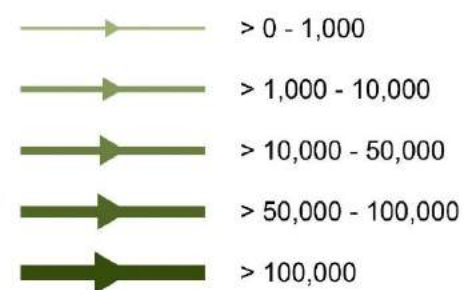


Legend

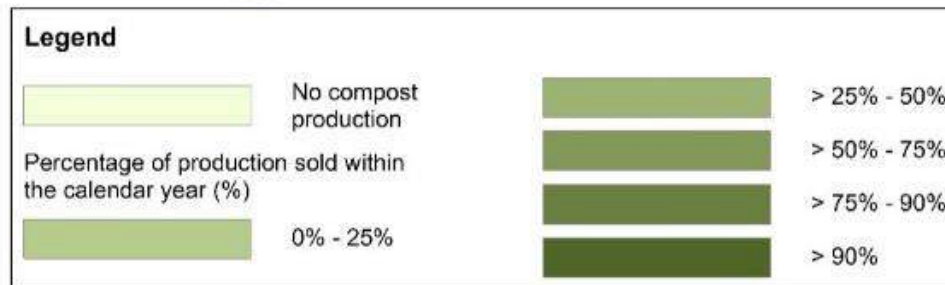
Total Feedstock Received from Local Sources by County during 2018 [tons]



Total Shipped Feedstock (County to County) during 2018 [tons]



Reported % compost produced sold during the same calendar year of its production



>75% of the compost products (on an aggregated basis) were sold in most counties with facilities producing compost

Facilities in 8 counties sold >90% of their aggregated production: Pierce, Thurston, Lincoln, Adams, Chelan, Jefferson, Kitsap, and Clark

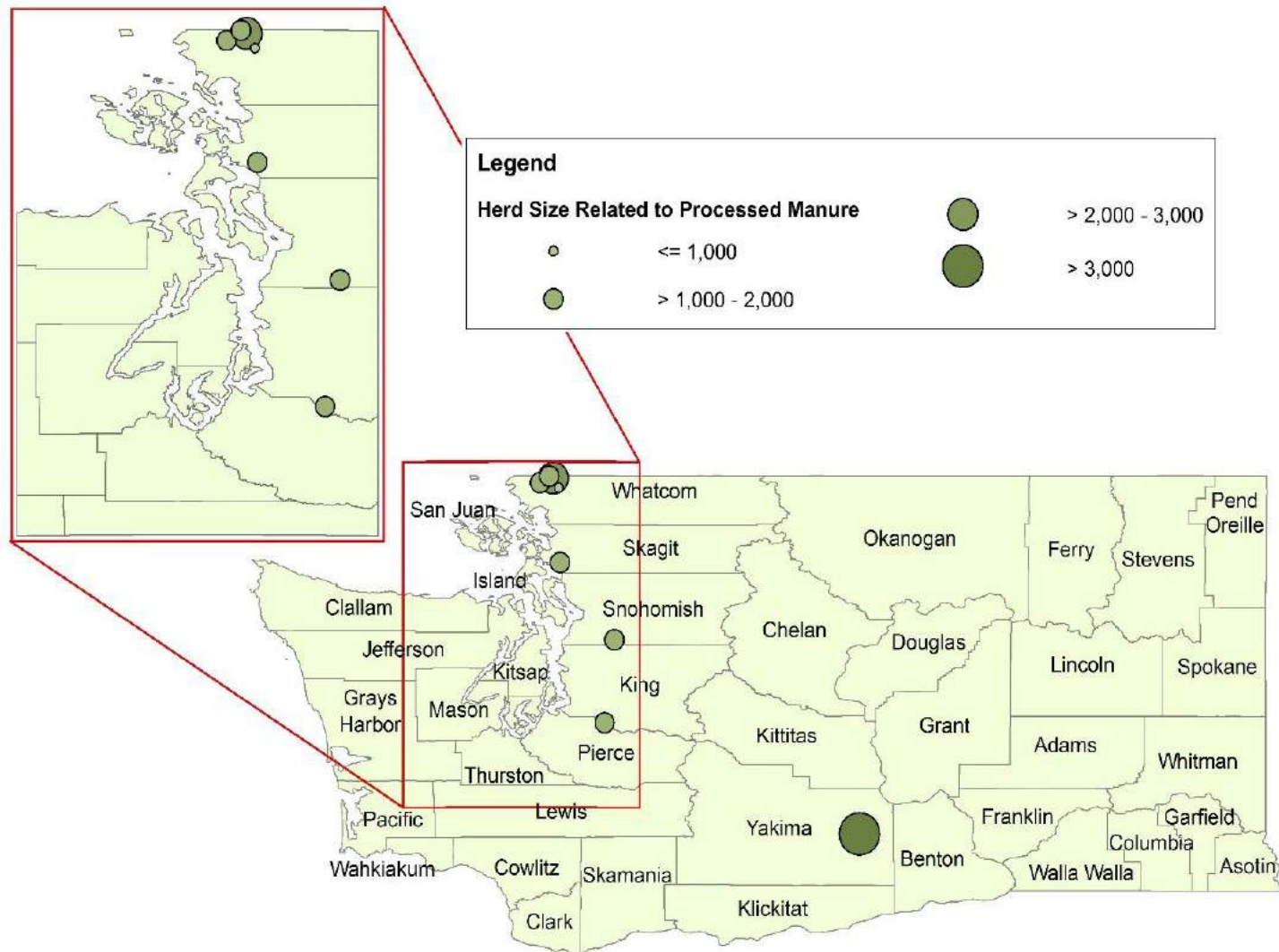
Anaerobic Digestors: Dairy (2020)

Facility	City (County)	Start Year	Dairy Size (heads)	Biogas End Use
Blok's Evergreen Dairy Inc.	Lynden (Whatcom)	2015	NA	NA
Edaleen Cow Power, LLC Digester	Lynden (Whatcom)	2012	2,500	Electricity
Farm Power Lynden Digester ⁱ	Lynden (Whatcom)	2010	2,000	Electricity
Farm Power Rexville Digester	Mount Vernon (Skagit)	2009	1,500	Electricity
G DeRuyter and Sons Dairy Digester ⁱⁱ	Outlook (Yakima)	2006	4,000	RNG (3)
Qualco Energy Digester	Monroe (Snohomish)	2008	2,000	Electricity
Rainier Biogas Digester	Enumclaw (King)	2012	1,500	Electricity
Van Dyk Dairy Digester	Lynden (Whatcom)	2011	800	Electricity
Vander Haak Dairy Digester	Lynden (Whatcom)	2004	1,500	Electricity

Most co-digest food processing waste

Notes: (i) Currently shut down (ii) Only facility in Washington producing renewable natural gas for CA LCFS. Only facility processing manure-only feedstock due to its lower LCFS carbon scoring. *Source: Based on EPA (2020j) and C. Frear, personal communication (2021, March 11)*

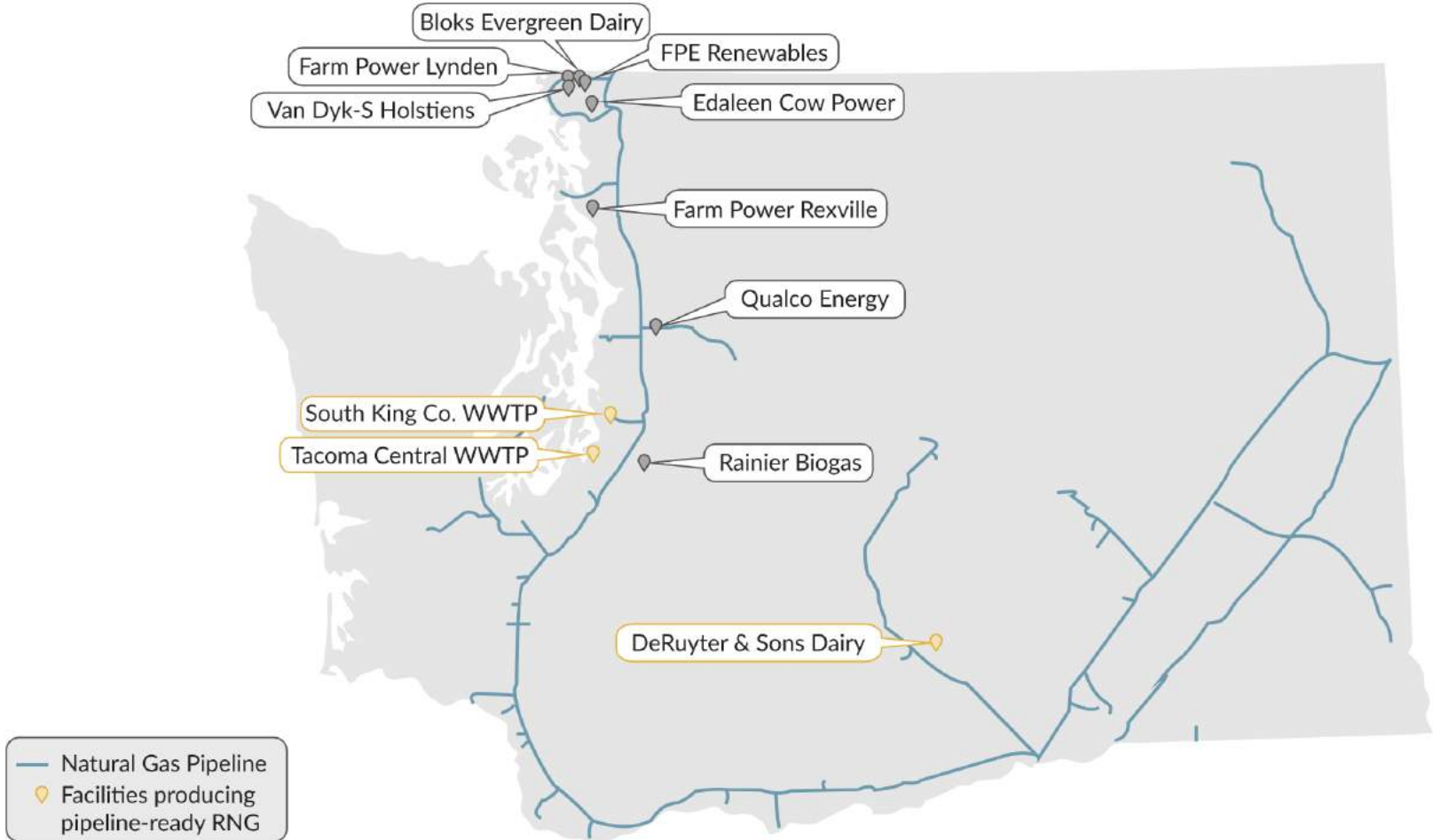
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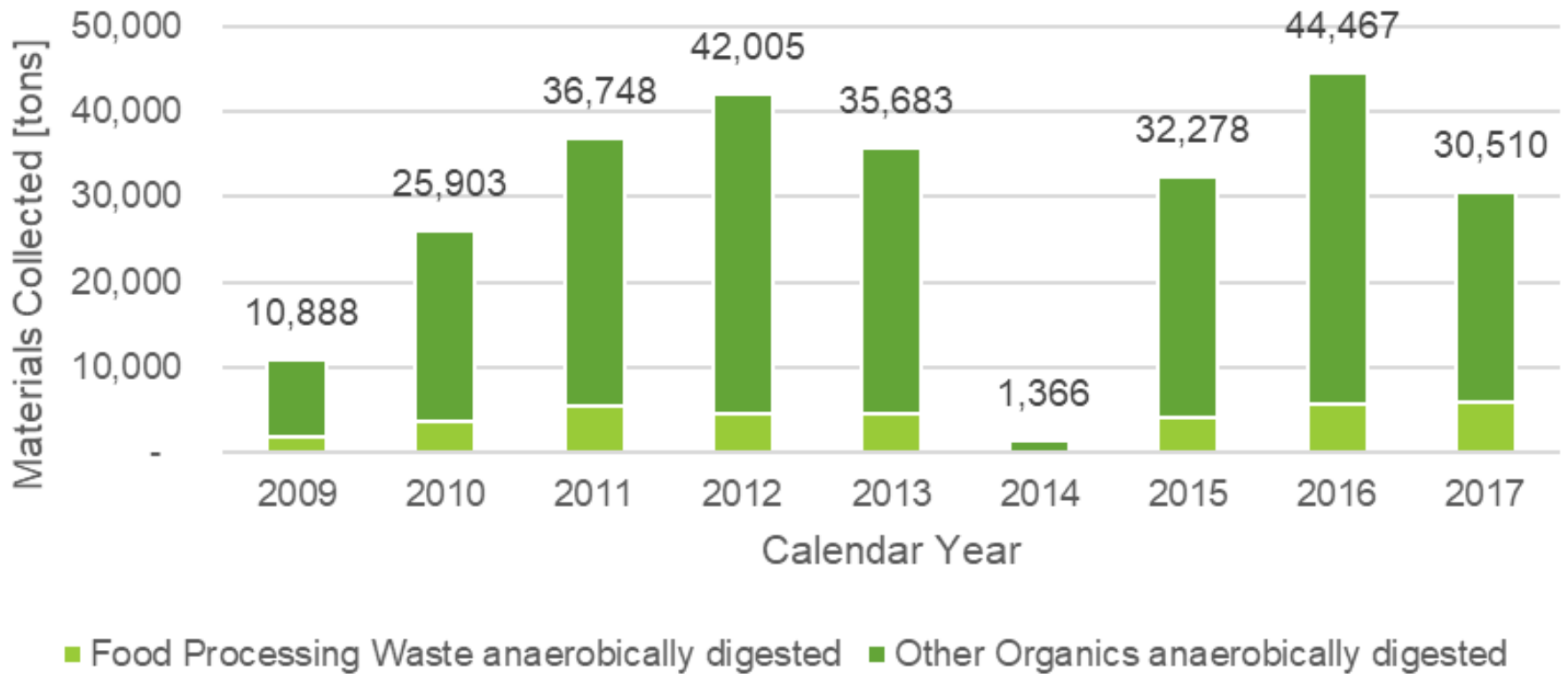
Biogas

Exhibit 4.1: Washington's dairy-based ADs and WWTPs are located close to the national gas pipeline



Source: JLARC staff analysis of Washington State Department of Agriculture data on dairy AD locations; King County and City of Tacoma staff interviews. Pipeline detail provided by Washington Utilities and Transportation Commission staff.

Anaerobic Digestors: Dairy (2020)



Land Application



15 land application sites with solid waste permits

These figures do not include land application in agricultural operations which do not require solid waste permits and include application of materials such as manure, bedding, crop residue, on-farm vegetative materials, compost, vermicompost, and digestate.

Land Application: 2008-2012



Applied food processing and agricultural organic material ranged between 6,241 and 11,112 tons between 2008 and 2017

These figures do not include land application in agricultural operations which do not require solid waste permits and include application of materials such as manure, bedding, crop residue, on-farm vegetative materials, compost, vermicompost, and digestate.

Thank You!



US Department of Agriculture

Zero Waste Washington
www.zerowastewashington.org

