

Compost in Rural New Mexico: Why it matters & what it will take



*Integrating organic amendments into rural agricultural operations
and the economic considerations of compost market creation in NM*

By Amy Larsen & Jessie Hook



Presentation Agenda:

- ❖ Introduction (**Amy**)
 - About Quivira
- ❖ Organic Amendments/Applications Projects
- ❖ Soil Health Principles & ASP System
- ❖ Circular Economy of Waste (**Jessie**)
 - Economics of ASP vs Landfill
- ❖ Closing, Questions
- ❖ **Brief Survey & Sign-in**



About Quivira & Carbon Ranch Initiative (CRI) Team:

Quivira Coalition Mission:

To **build resilience on western landscapes** by fostering ecological, economic and social health **through education, innovation, collaboration.**

CRI Team Goal:

Focus on **healthy soil and productive use of waste** by **building the capacity** of producers through research, engagement, and technical support

Organic Amendments: Production Rangelands



Several grant-funded projects aim to build producer capacity around compost, vermicompost, biochar **PRODUCTION**



Organic Amendments: Application on Rangelands



Other projects focused on biochar, compost, bale grazing **APPLICATION** on rangelands.



Soil Health Principles

A Foundational Framework to Quivira's Work



Soil Health Principles

Organic Amendments impact 3 out of 4 Healthy Soil Principles



How to use “waste” productively?

Creating Closed Loop Systems: Organic Waste to Asset

Produce compost from wood chips, manure, food scraps, etc.



Application to improve soil health



Produce biochar from woody or brush waste

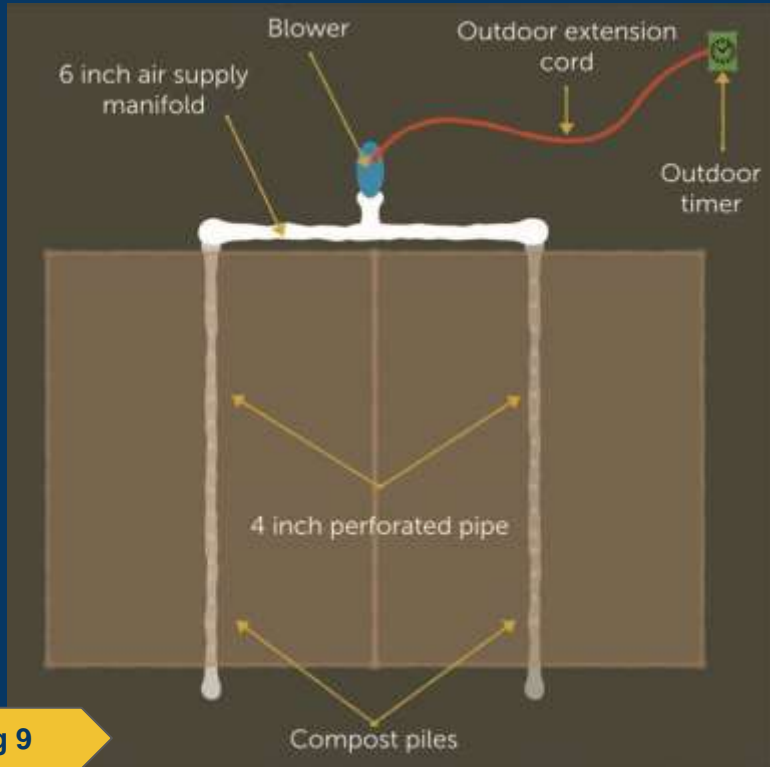


A Compost System for Rural NM: Aerated Static Piles (ASP)

Requirements, specifications & use for producers

Option that is **low cost, low maintenance, & time efficient** to process.

Requires no turning and is **mobile, modular & scalable**. Batch complete in 30-60 days, then cures.



Requirements:

- Footprint: 25' wide x 25-50' long
- Needs water and electric source (solar?)
- Requires tractor or skidsteer to mix & move
- Finished product can be spread from truck by hand, but manure spreader much easier.

Circular Economy of Waste:

Taos County Case Study

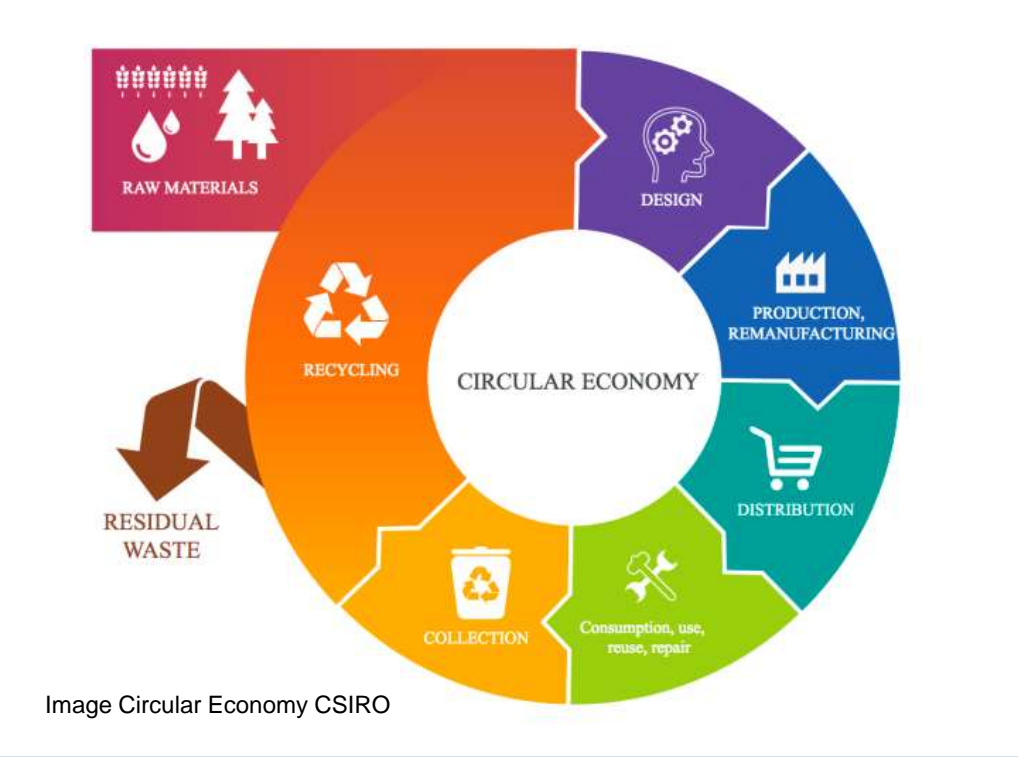


Image Circular Economy CSIRO



Exploring Circular Compost Economy in Taos New Mexico:

In partnership with Taos County Solid Waste, Taos Land Trust, and Reunity Resources

Stakeholder Collaboration

Implementation & Education

Analysis & Financial Projections



Comparing Options for “Waste”: Regional Landfill, Inactive Organic Piles & Aerated Static Piles

Taos Regional Landfill Expansion



Taos Inactive Organic Pile



Aerated Static Pile Construction



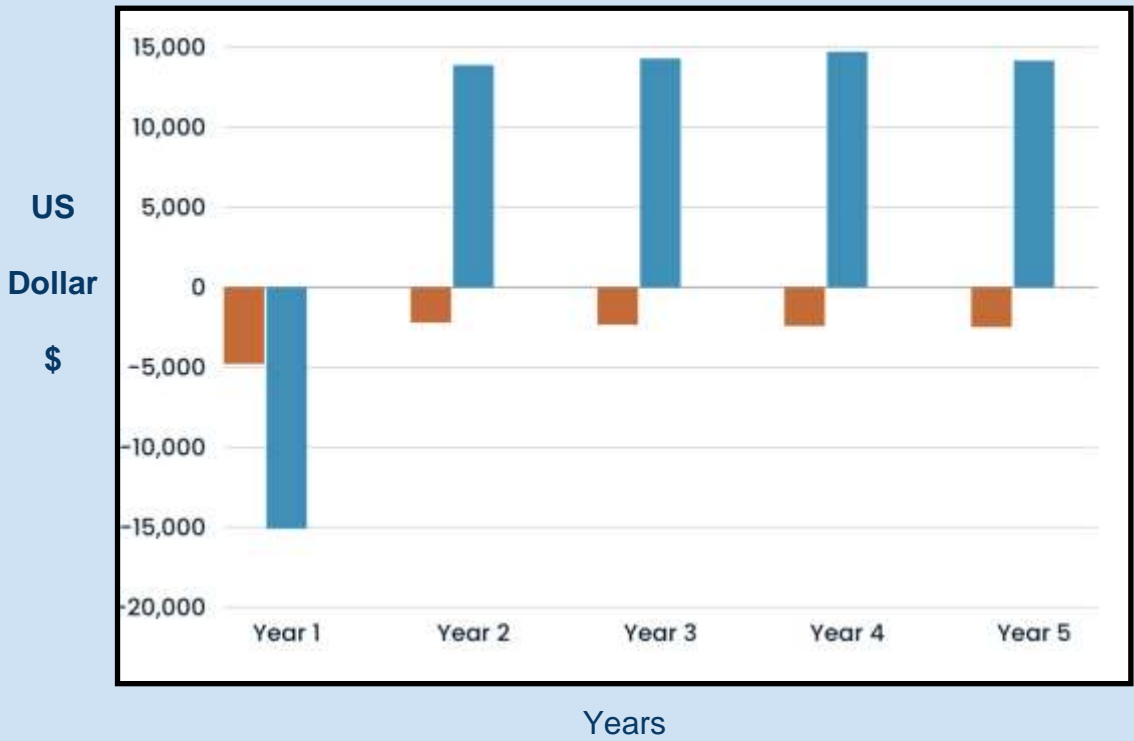
Waste to Landfill “S.W.O.T” Analysis:

Exploring system strengths, weaknesses, opportunities and threats

Landfill STRENGTHS	Landfill WEAKNESSES	Landfill OPPORTUNITIES	Landfill THREATS
<ul style="list-style-type: none"> → Familiar → Less management → Less equipment 	<ul style="list-style-type: none"> → Transport cost → Landfill fee 	<ul style="list-style-type: none"> → Centralized municipal composting 	<ul style="list-style-type: none"> → Air & water pollution → Financial burden to individuals and county → Space limitations
ASP STRENGTHS	ASP WEAKNESSES	ASP OPPORTUNITIES	ASP THREATS
<ul style="list-style-type: none"> → Soil amendment → Smaller footprint 	<ul style="list-style-type: none"> → Upfront costs → Requires maintenance → Sales Certification cost 	<ul style="list-style-type: none"> → Potential revenue → Input cost reduction (fertilizers, pesticides) → Improves soil health (microbial activity & water retention) 	<ul style="list-style-type: none"> → Water & Electricity → NIMBY (Not In My Back Yard) from adjacent land users (smells)

ASP vs. Going to the Landfill Net Income Projections

Net Income calculates revenue - expenses



BLUE - ASP Net Income

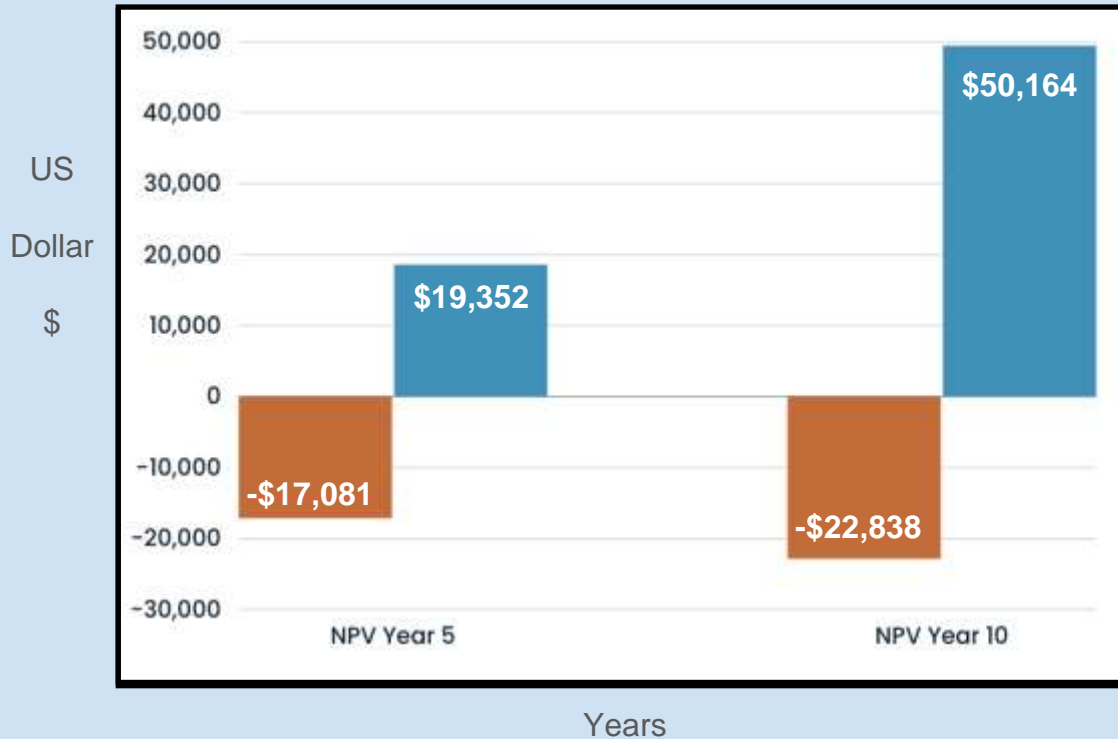
ORANGE - Disposing Waste at the Landfill Net Income

Landfill Payback Period: -1.75	ASP System Payback Period: 1.15
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ASP Costs	Assumption & Cost Details	Upfront Cost (Year 1)
ASP Set Up Items	Purchased New: HP Blower, Timer, Perforated Pipe, Compost Thermometer, Blower Cover & Shovels	-\$1380
Feedstock Collection Labor & Gas	2 people, 2 hours/month at \$17/ hr, 12 months of 30 miles/month	-\$816 + -\$73
ASP Labor & Maintenance	2hrs loading and 2h unloading, 2 people \$17/hr, 8 times/sessions	-\$544
Utility Trailer	Standard 5x10x1.5	-\$2,500
Kubota Tractor & Fuel	Relatively New, BS23X + ¼ per gallon/hr , at \$4.95/gallon	-\$25,000 + -\$178.20
Sales	Small town context marketing budget: \$50/month, 8 hrs of labor, 1 person at \$20/hr	-\$2,520
Certification with NMED	Assuming NMRC member and small business, no hotel costs associated	-\$449
TOTAL ASP COSTS (Year 1)	Sum of all costs	-\$32,562
ASP Revenue	Assumptions & Revenue Details	Total Income
Compost Value (Reflected in sales or added value to land)	100 yds of feedstock, 45% return of compost, producing 45 cubic yds of finished compost, valued at \$100 per cubic yds, YR01 sales = 4	\$18,000
ASP NET INCOME, YEAR 1	Net Income = Costs - Revenue	-\$14,562

Net Present Value (NPV)

The value of an ASP investment over time through compost sales



BLUE - ASP Net Income

ORANGE - Disposing Waste at the Landfill Net Income

NPV accounts for the net income each year and depreciation (the reduction of an asset in value over time).

Benefits of Compost Markets:

Economic, Environmental and Social Shared Value



Economic Benefits

- Revenue
- Input Cost Reduction
 - Producers & County
- Potential for local private and public collaboration and shared economic value



Environmental Benefits

- Soil Health Improvement
 - Aiding in resiliency
- Organics diversion:
 - Dramatically reduces emissions & pollutants
 - Increases landfill capacity



Social Benefits

- Shared value of community, revenue & land resiliency
- Tangible and local emissions reduction tactic
- Local municipal revenue potential through centralized composting

Resources...

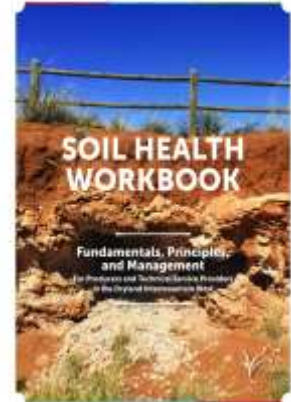
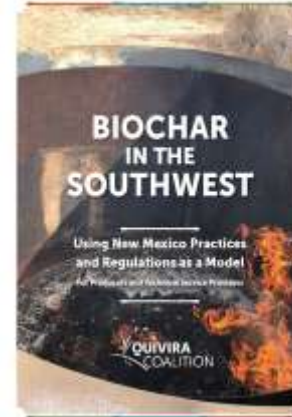
Stay tuned for upcoming case study...



Exploring the Costs and Benefits
of Compost Markets in
Rural Northern New Mexico

Check out these technical guides online...

<https://quiviracoalition.org/techguides/>



Thank you & Questions

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