

Single-Stream Recycling: One Decade Later

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What you'll learn today

Why single-stream is more common now

Why this form of recycling isn't perfect

**How single-stream service might change in
the coming years**

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Opening observations

Single-stream recycling is simply total demingling (making eggs out of omelets)

It is merely the separation of flat things (paper) from round things (containers)

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Opening observations

Single-stream recycling systems were created, in part, by the surge in demand for recovered paper by Chinese mills over the past decade

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Some facts

<u>Year</u>	<u>All MRFs</u>	<u>Single-stream</u>
1995	133	5
2001	470	32
2005	473	73

Single-stream was first in the West, then the Midwest, then the Southeast, then the Northeast

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Some facts

Single-stream MRFs are twice as large (350 TPD on average) than dual-stream MRFs

Most are converted dual-stream MRFs

Mixed-materials transfer is common

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Benefits of single-stream service

- O Lower collection costs (30% or more)**
- O Increase in participation**
- O Increase in pounds per household due to increased cubes**
- O Dry fiber if lidded carts replace bins**

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Benefits of single-stream service

- O Often more cubes on truck**
- O Improved worker safety**
- O Need for just one infeed pit**
- O Requires smaller tipping floor**

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Weaknesses of single-stream service

- O Not for everybody: requires sufficient throughput**
- O More floor spaced need for sorting equipment**
- O Increased residue levels (often 10 to 15 percent)**

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Weaknesses of single-stream service

- O May require additional sorters**
- O Carts cost much more than bins**
- O Material quality issues**

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Costs of single-stream service

- O Single-stream pushes costs down to end users**
- O AF&PA estimates, per ton of paper:
collection costs reduced \$3 per ton
MRF costs increased \$10 per ton
Mill costs rose \$8 per ton**

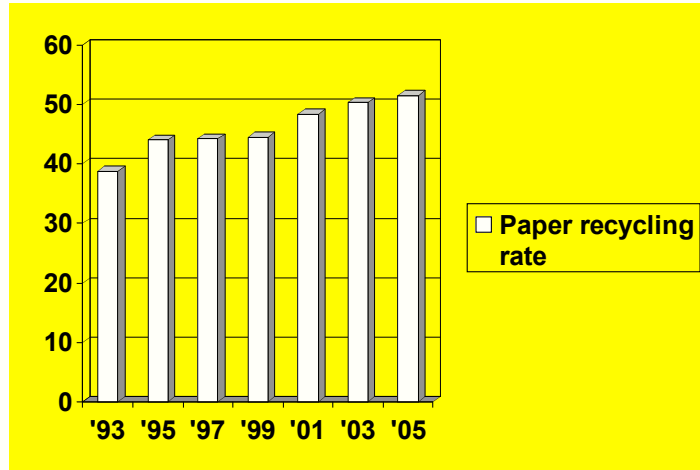
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Conclusion

- O Single-stream recycling helps explain in part why recycling levels continue to rise**

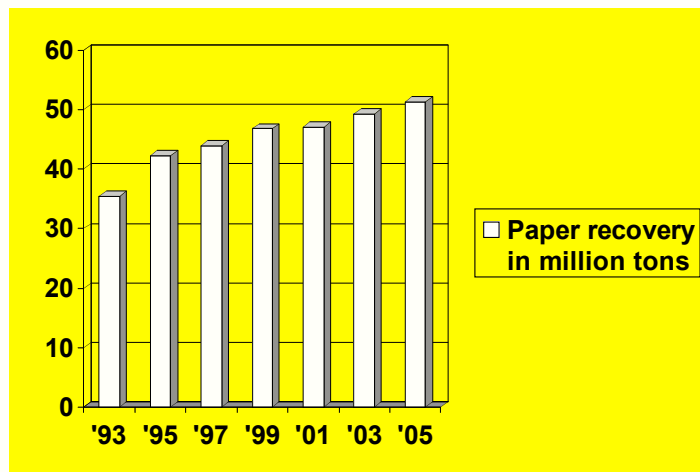
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Yes, we continue to grow



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Yes, we continue to grow



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Conclusion

- O Single-stream service is why many U.S. communities have launched or expanded their curbside program this decade**

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More recycling

- Jacksonville, AL
- Talladega, AL
- Carlisle, AR
- Nogales, AZ
- Tucson, AZ
- Blythe, CA
- Fresno County, CA
- Los Angeles, CA
- Oakland, CA
- Palmdale, CA
- Rio Dell, CA
- Sacramento, CA
- San Diego, CA
- San Francisco, CA
- San Jose, CA
- San Leandro, CA
- Santa Cruz, CA
- Stockton, CA

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More recycling

- Sutter, CA
- Weed, CA
- Yuba, CA
- Aspen, CO
- Denver, CO
- Durango, CO
- Fort Collins, CO
- Loveland, CO
- Groton, CT
- Roswell, GA
- Honolulu, HI
- Des Moines, IA
- Keokuk, IA
- Crest Hill, IL
- Manteo, IL
- Peotone, IL
- Springfield, IL
- Trenton, IL

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More recycling

- Urbana, IL
- Fort Wayne, IN
- Syracuse, IN
- Tell City, IN
- Bel Aire, KS
- Butler County, KS
- Conway, KS
- Manhattan, KS
- Henderson, KY
- Slidell, LA
- Barnstable, MA
- Bourne, MA
- Townsend, MA
- Frederick Co., MD
- Hagerstown, MD
- Rising Sun, MD
- Oakland, MD
- Saginaw, MI

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More recycling

- Shelbourne Co. MN
- Kansas City, MO
- O'Fallon, MO
- Jackson, MS
- Kernersville, NC
- Mecklenburg Co. NC
- Orange County, NC
- Winston-Salem, NC
- Omaha, NE
- Concord, NH
- Nashua, NH
- Portsmouth, NH
- Raymond, NH
- Albuquerque, NM
- Bernalillo Co., NM
- Broome County, NY
- New York, NY
- Akron, OH

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More recycling

- Tiffin, OH
- Beaverton, OR
- Eugene, OR
- Hood River, OR
- La Grande, OR
- Madras, OR
- Portland, OR
- Gloucester, RI
- Little Compton, RI
- Portsmouth, RI
- Richmond, RI
- Warren, RI
- Woonsocket, RI
- Aberdeen, SD
- Memphis, TN
- Nashville, TN
- Dallas, TX
- El Paso, TX

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More recycling

- Plano, TX
- Sherman, TX
- Waxahachie, TX
- Bluffton, UT
- Lehi, UT
- Murray, UT
- Ogden, UT
- Salt Lake City, UT
- Alexandria, VA
- Franklin, VA
- Loudon County, VA
- Norfolk, VA
- Carnation, WA
- Federal Way, WA
- Kirkland, WA
- Seattle, WA
- Snohomish Co. WA
- Winnebago Co. WI

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Conclusions

- More tons are collected
- More tons are recycled
- No one has abandoned single-stream service
- Technology is catching up

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Conclusions

- O But end users are harmed**
- O And what happens if Chinese demand weakens and U.S buyers are again the dominant players?**

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Drop me a line

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