

A New Norm in Catalogs:

Results of the Partnership between Norm Thompson Outfitters and the Alliance for Environmental Innovation

The Good News about Recycled Paper, pp.8-21

Many suppliers offer Price Parity, p.10

What customers think: The Sales Impact, p.12

Environmental Benefits worth bragging about, p.16

Capacity Exists to meet demand, p.20

ABOUT THE AUTHORS

Alliance for Environmental Innovation

The Alliance for Environmental Innovation is a project of Environmental Defense and The Pew Charitable Trusts. The Alliance works cooperatively with companies to create environmental solutions that make business sense. For more information, please visit www.EnvironmentalDefense.org/Alliance.

Norm Thompson Outfitters

Norm Thompson Outfitters sells apparel, gifts, and home items through its catalogs (Norm Thompson®, Solutions®, Early Winters®, and Waterfront Living®), retail stores, and web sites. To learn about the company's environmental initiatives, please visit www.NormThompson.com/Sustainability.

Project Team

The Norm Thompson Outfitters/Alliance project team included the following persons: Alliance for Environmental Innovation: Victoria Mills, project manager (project leader), and Gwen Ruta, director. Norm Thompson Outfitters: Derek Smith, corporate sustainability manager (project leader); Rebecca L. Jewett, president; and Steve Jones, vice president, marketing. Marketing department: Kathy Carrier, Patricia Davis, Sally Haworth, Carolyn Klinko, Linda Miller, John Snyder, Lisa Snyder, Jill Palamountain, and Mark Schneider.

ABOUT THIS REPORT

Acknowledgments

Funding for this project was provided by The Pew Charitable Trusts, the Educational Foundation of America, and members and benefactors of Environmental Defense. The authors wish to thank the following individuals and organizations for providing information and guidance: Peggy Bernard, Business for Social Responsibility, Conservatree, The Direct Marketing Association, Janie Downey, Experian, LC Dowd Consulting, International Paper, Kinko's, McDonald's, New Leaf Paper, Quad/Graphics, Quebecor World, R.R. Donnelley & Sons, TerraChoice, and Time Inc. From the Alliance for Environmental Innovation/Environmental Defense we thank Robert Bonnie, Jackie Cefola, Richard Denison, Chad Laurent, Tom Murray, Lily Kang, and Jackie Roberts.

Disclaimer

The mention of any company, product, or service in this report does not imply endorsement by the Alliance for Environmental Innovation, Environmental Defense, or Norm Thompson Outfitters.

Copyright © 2001 Alliance for Environmental Innovation and Norm Thompson Outfitters

Paper specifications for copies of this report printed by the authors:

Text: 100% postconsumer recycled content. 60-lb. basis weight. Totally chlorine free.

Cover: 20% postconsumer recycled content. 90-lb. basis weight. Totally chlorine free.

A NEW NORM IN CATALOGS:

Results of the Partnership between Norm Thompson Outfitters
and the Alliance for Environmental Innovation

CONTENTS

Executive Summary	2
1. Introduction	4
2. Increasing Recycled Content	8
3. Improving Paper Efficiency	22
4. Evaluating Supplier Performance	25
5. Next Steps	32
Appendix A: Major Suppliers of Recycled-Content Coated Paper	34
Appendix B: Recycled Paper Capacity Study	35
Appendix C: Environmental Evaluation Form for Paper Suppliers	39

EXECUTIVE SUMMARY

Catalogs, Paper, and the Environment

With an estimated 19.5 billion catalogs mailed in the United States last year – 71 for every man, woman, and child – catalogs are ubiquitous in our society. They represent an important part of our economy, a sector with revenues of over \$100 billion and growing. And they consume tremendous amounts of paper – nearly 3.6 million tons in 2000.

Producing and disposing of this much paper places a significant burden on the environment. Paper is the third most energy-intensive of all manufacturing industries, and ranks in the top five for releases of toxic chemicals to air and surface water. Paper products make up the largest portion of municipal solid waste.

Fortunately, there are steps catalog companies can take to reduce the environmental impacts of their paper use while protecting their business interests. In fact, because they use so much paper, catalog companies have the power to make a positive difference for the environment. This report describes the results of a partnership between Norm Thompson Outfitters, a catalog retailer, and the Alliance for Environmental Innovation, a non-profit environmental group, to do just that.

Switching to Recycled-Content Paper

As a result of the partnership, Norm Thompson Outfitters has decided to print all of its catalogs on paper containing a minimum of 10% postconsumer recycled content (hereafter called recycled-content paper). Compared to virgin paper, recycled-content paper consumes less wood, energy, and water; reduces emissions of air and water pollutants, and cuts the amount of trash sent to landfills and incinerators.

The partnership proved that recycled-content paper is not just better for the environment, but meets business needs as well. The company made the switch to recycled-content paper only after determining that it would not adversely affect paper availability, printability, or customer response to its catalogs. By working with its suppliers, the company also was able to obtain the recycled-content sheets at the same price as virgin paper.

Environmental Benefits of Recycled-Content Paper

At present, the most widely available level of postconsumer recycled content in catalog paper is 10%. Even this incremental step yields big benefits, however. The Alliance calculates that Norm Thompson Outfitters' move to recycled-content paper will achieve the following annual environmental improvements:

- 4,400 fewer tons of wood consumed – the amount needed to produce a year's worth of copy paper for 94,000 people
- 20 billion BTUs of energy saved – enough to supply 190 households for a year
- 11.7 million gallons of wastewater avoided – the annual discharges of 120 households
- 990 tons of solid waste prevented – the trash produced annually by 460 households

A New Industry Standard

The partnership is paving the way for other catalogers to switch to recycled-content paper, and to increase the level of postconsumer recycled content over time. If the entire catalog industry added just 10% postconsumer recycled content to the paper it uses now, the environmental benefits would be enormous – achieving hundredfold reductions in wood and energy consumption and emissions of pollutants. Wood use alone would decrease by an amount equivalent to that needed to produce the copy paper used annually by over 18 million people, or the population of the entire Los Angeles metropolitan area.

Norm Thompson Outfitters and the Alliance for Environmental Innovation are continuing to work together to encourage such a move in the catalog industry. Addressing catalogers' concerns about price and availability, this report shows that many suppliers offer recycled-content paper at the same price as virgin, and that there is no shortage of supply. In North America, capacity now exists to convert at least an additional 681,000 tons per year – and up to 5.36 million tons per year – of catalog paper to 10% postconsumer recycled content. Paper producers and recycled pulp suppliers confirm that a steady and sustained increase in demand for recycled-content paper is the best prospect for increasing production and capacity while smoothing out price fluctuations.

Proactive Paper Purchasing

In addition to switching to recycled-content paper, Norm Thompson Outfitters has taken steps to maximize the efficiency of its paper use. It rigorously examines its mailing lists to avoid misdirected and undeliverable catalogs. And in one of several tests, the company determined that it could end the practice of enclosing requested catalogs in outer envelopes. This simple step will save the company over \$50,000 a year.

Finally, Norm Thompson Outfitters is working with its suppliers and others to support environmental progress in pulp and paper manufacturing and forest management. The company is putting in place a system to evaluate the environmental performance of its paper suppliers, which will be factored into future paper-purchasing decisions.

Norm Thompson Outfitters' Steps toward Greener Paper

Increasing Postconsumer Recycled Content

- Switched body and cover paper from 0% to 10% postconsumer recycled content in Norm Thompson[®], Solutions[®], and Waterfront Living[®] catalogs.
- Switched body of Early Winters[®] catalog from 0% to 10% postconsumer recycled content; testing 20%. Switched cover paper from 0% to 60% postconsumer recycled content.
- Switched order forms from 0% to 30% postconsumer recycled content in all catalogs.

Improving Paper Efficiency

- Minimizing unwanted, misdirected, or undeliverable catalogs.
- Eliminated outer envelope from catalogs sent by customer request.
- Introducing customer option to modify frequency of catalog delivery.

Evaluating Supplier Performance

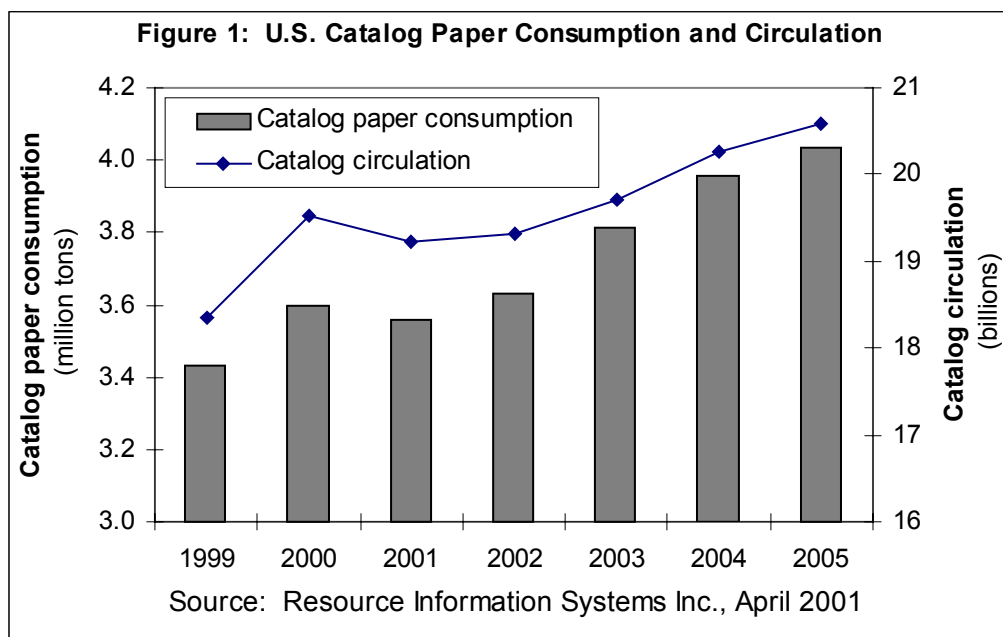
- Implementing annual environmental performance review of paper suppliers.

1. INTRODUCTION

Norm Thompson Outfitters and the Alliance for Environmental Innovation formed their partnership with a common goal: reducing the environmental impacts generated by the company's catalogs.

Catalogs, Paper, and the Environment

Catalogs represent an important part of the U.S. economy. Total catalog sales are forecasted to grow from \$110.6 billion in 2000 to \$155.4 billion in 2005. Catalog sales growth during this period is expected to outpace that of overall retail sales.¹ In 2000, 19.5 billion catalogs were mailed in the United States, or about 71 for each person.²



As the catalog industry has grown, so has its use of paper. The catalog industry consumed nearly 3.6 million tons of paper in 2000, almost 13% of all printing and writing paper produced in the United States.³ Catalog paper consumption is expected to exceed 4 million tons by 2005.⁴

So far, the growth of electronic commerce has not slowed paper consumption. Indeed, many catalog companies are using their websites to expand the circulation of their paper catalogs, and businesses of all kinds have expanded into direct mail in an effort to become multichannel marketers. While electronic commerce could one day reduce catalog retailers' reliance on paper catalogs, for now they remain the industry's primary marketing vehicles.

The use of so much paper comes at a high cost to the environment, in the form of energy and resources consumed, greenhouse gas emissions and other pollutants released to the air and water, and solid waste generated.

- **Energy use.** Paper production is the third most energy intensive of all manufacturing industries, using 11.5% of all energy in the U.S. industrial sector in 1998.⁵
- **Water use.** The pulp and paper industry is one of the largest users (per ton of product) of industrial process water in the United States. A typical modern mill producing virgin bleached pulp uses 16,000 to 17,000 gallons of water per ton of pulp produced. This is down from the average of 100,000 gallons per ton typical in the mid-1940s.⁶
- **Chemical releases.** In 1999, the pulp and paper industry ranked third among industrial sectors in emissions of Toxics Release Inventory chemicals to air, and fifth in discharges of such chemicals to surface water.⁷
- **Solid waste.** Paper and paperboard products make up the largest portion (31%) of municipal solid waste disposed of in landfills and incinerators.⁸ Among other impacts from this disposal, the decomposition of paper in landfills produces methane, a powerful greenhouse gas.

The catalog industry will likely remain a large consumer of paper for some time. But catalog companies can become more environmentally proactive paper purchasers, while still meeting their business needs. In fact, because they use so much paper, catalog companies have the power to make a positive difference for the environment.

Genesis of the Alliance/Norm Thompson Outfitters Partnership

Since its founding in 1994, the Alliance for Environmental Innovation has worked with companies such as United Parcel Service and Bristol-Myers Squibb to reduce the environmental impacts of their use of paper and packaging, in ways that also make business sense. The Alliance's expertise in paper is grounded in the work of the Paper Task Force, a voluntary, private-sector initiative convened by the Alliance's parent organization, Environmental Defense. The Paper Task Force examined paper economics and functionality in major paper grades, as well as environmental impacts through the full lifecycle of paper. In 1995 the Paper Task Force published recommendations for purchasing paper that would reduce environmental impacts while still meeting business needs.⁹

In 1999, the Alliance began promoting environmentally preferable paper practices in the catalog industry. In "Greener Catalogs," a report published late that year, the Alliance benchmarked the paper practices of leading catalog retailers and highlighted opportunities for improvement. For example, the Alliance found that almost no catalogers were using recycled-content paper, despite its clear environmental benefits, wide availability, competitive pricing and comparable performance to that of virgin paper.¹⁰

The Alliance cited Norm Thompson Outfitters in the “Greener Catalogs” report as an example of a company that was using recycled-content paper – in its Early Winters® catalog. Table 1 lists Norm Thompson Outfitters’ four catalog titles.

Table 1: Norm Thompson Outfitters’ Catalog Titles

Catalog title	<i>Norm Thompson</i>	SOLUTIONS	Early Winters	Waterfront Living®
Description	Upscale men’s and women’s apparel, food, and gift items	Household, garden, and pet products	Outdoor men’s and women’s apparel and gear	Furnishings and accessories for the waterfront lifestyle

Norm Thompson Outfitters’ chairman had long been interested in environmental issues, and the corporate headquarters in Hillsboro, Oregon, completed in 1995, was among the first commercial “green” buildings in the United States. At the time that “Greener Catalogs” was published, Norm Thompson Outfitters was beginning to incorporate environmental considerations into its daily business operations. In 1999 the company trained all its employees in environmental issues, hired a corporate sustainability manager, and developed a five-year Sustainability Action Plan, which set specific targets for environmental and business gains. The plan targeted catalog paper as a major area of environmental impact and a top priority for action.

Discussions between Norm Thompson Outfitters and the Alliance during the writing of “Greener Catalogs” generated a mutual interest in working together after the report was published. For Norm Thompson Outfitters, the partnership offered an opportunity to advance its goals by working with an independent expert in environmentally preferable paper. For the Alliance, it was a chance to prove, in partnership with a mainstream catalog retailer, the business case for greener paper practices. There was a strong alignment of priorities between the two organizations on both the project’s goals and how they would be achieved.

The Partnership’s Goals and Structure

In March 2000, the Alliance and Norm Thompson Outfitters signed an agreement that laid out the following goals for the partnership:

- Significantly reduce energy and resource use, solid waste, and pollution.
- Achieve these goals without adding costs or compromising performance.
- Drive positive change in the catalog industry as a whole.

The agreement also included provisions protecting Norm Thompson’s confidential information, setting ground rules regarding communication of project results and use of each organization’s name, and committing each party to devote resources to the project. Because the Alliance does not accept financial contributions from partner companies, each party agreed to pay its own expenses related to the project.

Finally, the agreement outlined a scope of work for the partnership, establishing the project team and identifying the project's three focus areas:

1. Increasing the recycled content of the company's catalog paper.
2. Using paper more efficiently.
3. Evaluating suppliers.

This report describes the project team's activities and results in each area.

A Note about the Terminology Used in this Report

For ease of reading in this report, the term **recycled-content paper** is used to mean paper made from a blend of virgin and recycled pulp. Where postconsumer recycled content is expressed as a percentage, it refers to the amount of postconsumer materials (see definition below) as a percentage of the fiber content of the paper – excluding coatings, fillers, and moisture.

The following are some other terms used throughout this report:

- **Postconsumer** materials are finished products that have served their intended end use and if not recycled would end up in a landfill or incinerator.
- **Coated paper** is paper to which a layer of clay or other coating has been applied to improve printability and color reproduction. On average, coated papers contain about two-thirds pulp, with the balance of the paper comprised of coatings, fillers, and moisture.
- **Catalog paper** refers to all grades used in catalogs, including coated groundwood, coated freesheet, uncoated groundwood, uncoated freesheet, and supercalendered papers.
- **Recovered paper** is paper that has been collected for recycling.
- **Deinking** of recovered paper includes repulping, separation and removal of ink and other contaminants, washing, and brightening. **Deinked Pulp** refers to the resulting pulp, which is blended with virgin pulp to make recycled-content paper.

Adapted from Paper Task Force report, glossary

2. INCREASING RECYCLED CONTENT

Norm Thompson Outfitters has switched to paper with a minimum of 10% postconsumer recycled content in all of its catalogs.

Working with its paper suppliers and printers, the company found that such paper:

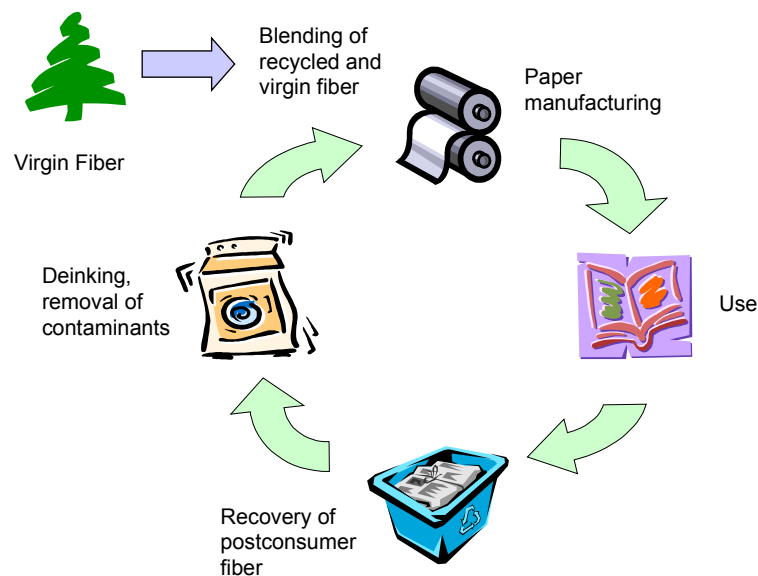
- Is **widely available** in coated grades
- Is **priced competitively** with virgin paper
- **Prints just as well** as virgin paper

Making Recycled-Content Paper Work at Norm Thompson Outfitters

The project team's first priority was to increase the level of recycled content in Norm Thompson Outfitters' catalog paper.

Switching from virgin to recycled-content paper benefits the environment in several ways. Incorporating recycled content into paper reduces the demand for wood, thus lessening the adverse impacts of commercial forestry. At the pulp or paper mill, making paper from used paper is generally a cleaner and more resource-efficient process than making paper from wood, since much of the work of separating fibers and bleaching the pulp has already been done. Recycling also reduces the amount of trash that must be collected, transported, and disposed of in landfills and incinerators, which cuts air and water pollution and greenhouse gas emissions (primarily methane) from paper's decomposition in landfills. Even though the recycling of paper and the production of recycled paper have their own environmental impacts, these are far outweighed by the gains.¹¹ Figure 2 shows how recycled-content paper is made.

Figure 2: The Paper Recycling Loop



When it began working with the Alliance, Norm Thompson Outfitters had already switched to recycled-content paper in its Early Winters® catalog as part of an overall redesign to strengthen the brand's appeal to outdoor enthusiasts. The redesign was followed by a significant expansion in sales for the title. Before changing the paper used in its other catalogs, however, the company needed more concrete evidence that switching to recycled-content paper would not hurt its business. The new paper had to meet four requirements:

- **Availability.** The recycled-content paper had to be readily available in the same grades, basis weights, and brightness levels the company needed.
- **Price.** The recycled-content paper could not cost more than the virgin paper the company was already using.
- **Printability.** The recycled-content paper had to maintain the same print performance (e.g., color reproduction, runnability) as that of virgin paper.
- **Customer response.** There could be no drop in the number or size of orders from customers due to the new paper.

Availability of Recycled-Content Catalog Paper

For coated papers used in the body of catalogs, the most widely available level of postconsumer recycled content is 10%. For heavier cover stocks and uncoated papers used for order forms or reply cards, this figure goes up to 30% or higher. Unlike lower grades such as corrugated, boxboard, and newsprint, which are readily available with much higher levels of recycled content, meeting coated papers' requirements with regard to brightness, strength, and smoothness has been more difficult at higher levels of recycled content. As papermaking technology advances over time, however, paper buyers can expect recycled-content levels to increase in coated papers as well.

The project team identified a variety of coated-paper options with recycled content. Almost all suppliers offer products with 10% postconsumer recycled content that achieve the same brightness levels, basis weight, opacity, and other characteristics as their virgin sheets. (For a listing of coated papers with recycled content available from major North American suppliers, please see Appendix A.)

Norm Thompson Outfitters ultimately chose recycled-content papers that matched the specifications of the virgin sheets the company was already using. Other than specifying recycled content, the company did not have to change anything about the paper or the way it was ordered. The new sheets were compatible with all printer requirements (e.g., roll widths, diameters, and cores) and did not come with any minimum tonnage requirements or longer delivery times.

Pricing of Recycled-Content Paper

Contrary to common perceptions, recycled-content paper does not necessarily cost more than virgin. Several major suppliers currently offer recycled-content paper at the same price (price parity) as its virgin counterpart (see Table 2).

Table 2: Major North American Suppliers of Recycled-Content Coated Web Paper

Grade	Suppliers offering at price parity with virgin paper	Suppliers offering at a premium, subject to negotiation
No. 1	Appleton Coated, Mead, Potlatch, Stora Enso	International Paper, Westvaco
No. 2	Appleton Coated, Domtar, Potlatch, Provincial Papers, Stora Enso, West Linn	International Paper, Mead, Pasadena Paper, Sappi, Westvaco
No. 3	Appleton Coated, Domtar, Potlatch, Provincial Papers, Stora Enso, West Linn	International Paper, Mead, Sappi, Westvaco
No. 4	Crown Vantage	International Paper, Mead, Stora Enso, UPM-Kymmene
No. 5	Bowater, Crown Vantage, Kruger	Bowater, International Paper, Stora Enso, UPM-Kymmene, Weyerhaeuser
SC	Kruger	International Paper, Stora Enso

Source: Alliance interviews with paper companies, May and August 2001. Catalog companies should verify information directly with suppliers.

Prices for recycled-content paper are partly determined by manufacturing costs. Depending on the supplier and the grade of paper produced, recycled-content paper may be more or less expensive to produce than virgin paper. Production costs vary by mill, and are driven by the relative cost to each mill of virgin and deinked pulp.

Manufacturing costs aside, whether or not a catalog company actually pays more for recycled-content paper depends on many other factors, such as the level of recycled content, the size of the order, roll trim, delivery requirements, market conditions, and the relationship between the paper supplier and the customer.

Norm Thompson Outfitters worked with its paper suppliers to create purchasing arrangements that allowed the suppliers to offset any extra costs, and to offer the recycled-content sheets at the same price as virgin paper.

Printing on Recycled-Content Paper

The quality of recycled-content papers has improved significantly in the past decade. When recycled-content coated papers were first introduced, their quality was inconsistent. Brightness and strength did not always match those of virgin paper, and surface imperfections sometimes caused spoiled paper rolls, breakage on the paper machine, or poor performance at the printer. Thanks to advances in papermaking technology – in particular the ability to remove dirt and contaminants during the deinking phase of the recycling process – papermakers now offer recycled-content sheets whose appearance, smoothness, and strength match those of virgin paper.

Norm Thompson Outfitters' marketing department did not discern any difference in the look and feel of sample catalogs printed on virgin and recycled-content paper. The company routinely tests with its customers variations in the grade, basis weight, or brightness of its catalog paper, which usually are apparent in a side-by-side visual comparison. This was not the case, however, with the recycled-content catalogs. Nonetheless, the project team wanted to make sure that nothing about the new paper – even something undetectable to the naked eye – would compromise its appearance to customers or performance at the printer.

Accordingly, the project team asked one of the company's suppliers, International Paper, to conduct a battery of tests examining the optical and physical properties of the Liberty sheet actually used in the company's Solutions® catalog. The results shown in Table 3 demonstrate that the recycled-content sheets met the product specifications, which are the same for virgin and recycled-content paper.

Table 3: Attributes of Recycled-Content Sheets Supplied for Solutions® (averages) Compared to Specification for International Paper's Liberty Sheet

Test	10% postconsumer for Solutions	Product Target (normal range)
Basis weight	39.87	40 (38.8 - 41.2)
Brightness: felt side	81.1	80 (78 – 82)
Brightness: wire side	80.7	80 (78 – 82)
Gloss: felt side	58.4	60 (55 – 69)
Gloss: wire side	57.6	60 (55 – 69)
Opacity	89.7	88.5 (87 - no top)
Tear strength/ machine direction	25	18 (12 – no top)
Tear strength/ cross direction	30.1	25 (16 – no top)

Source: International Paper.

International Paper's test results were confirmed by Norm Thompson Outfitters' actual experience. In multiple print runs by three different printers, there were no problems with runnability or color reproduction due to the recycled-content sheets.

We have the same quality control process for all of our papers. Whether recycled or virgin, the same quality standards for the brand must be met. If any product fails to meet the specification, it doesn't go out the door.

-- Peter Wilson, Catalog Marketing Manager
International Paper

Quad's experience printing Solutions® on 10% postconsumer recycled paper was 100% trouble-free. This is consistent with what we've observed with other clients. For companies who want to print on recycled paper, printability is not an issue.

-- Harry Quadracci, President and Founder
Quad/Graphics

We ran several recycled paper tests for Norm Thompson Outfitters, and never had problems with runnability or color. With any new sheet, you make minor adjustments to the printing process, but those adjustments are no greater for recycled than virgin paper.

-- Steven E. Zuccarini, President
Merchandise Media Group, R.R. Donnelley & Sons

Customer Response to Recycled-Content Paper

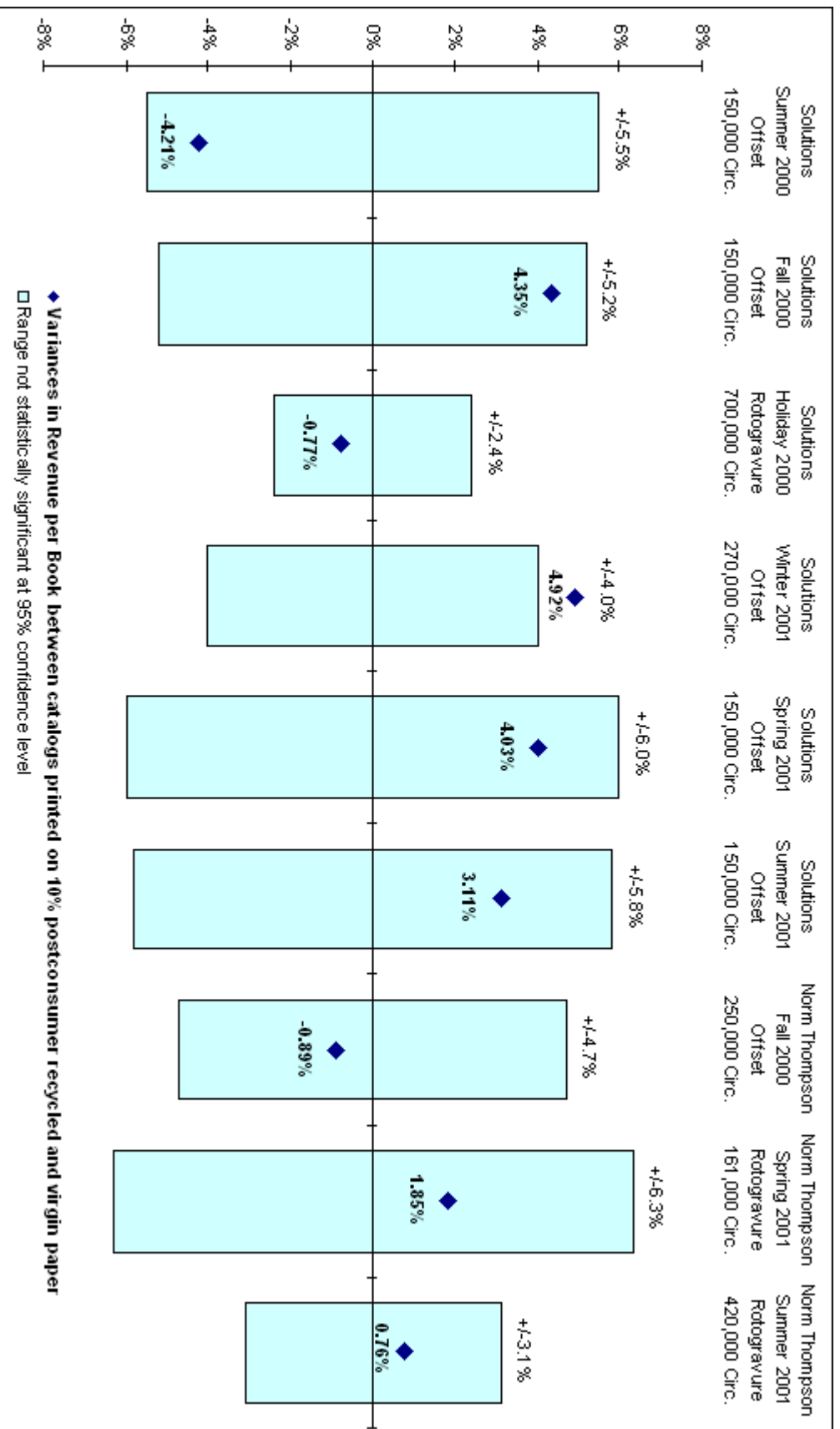
Although Norm Thompson Outfitters had assurances from its paper suppliers and printers that using 10% postconsumer recycled content would not compromise the appearance of its catalogs, the company needed to hear from the people whose opinions mattered most: its customers. Demonstrating equivalent customer response was critical not only to the company's own decision about recycled-content paper but also to its ability to make the case for its use to the rest of the catalog industry.

Between the summer of 2000 and the spring of 2001, the project team conducted a series of tests of recycled-content paper in mailings of the Solutions® and Norm Thompson® catalogs. The tests included both the offset and rotogravure printing processes. In each mailing, the company tracked the number of orders, size of orders, and revenue per catalog from the test group, which received catalogs printed on recycled-content paper, and two control groups, which received catalogs printed on virgin paper. The catalogs were mailed at the same time to randomly selected groups, and were identical in every way but the paper.

Figure 3 shows the results of the recycled-content paper tests. For each test, the chart shows (1) the variance in revenue per book between catalogs printed on recycled-content and virgin paper and (2) the range within which any variances are considered not statistically significant; that is, they produce the same result.

At a 95% confidence level – a typical standard for statistical certainty – only one of the tests, Solutions® Winter 2001, showed any statistically significant variance, and that test showed a slightly higher response to recycled-content catalogs than to virgin. These tests unequivocally demonstrated that overall, customers responded just as well to recycled-content paper as to virgin.

Figure 3: Results of Norm Thompson Outfitters' Catalog Paper Tests, 10% Postconsumer Recycled Content vs. Virgin



As a quantitative consultant to the catalog industry, I can see no statistically reliable pattern of differences in revenue per book between the catalogs printed on virgin and 10% postconsumer recycled paper.

-- Rick Courtheoux, Senior Vice President Database and Consulting, Experian

We couldn't tell the difference between the catalogs printed on virgin and recycled paper, and neither could our customers.

-- Jill Palamountain, Marketing Manager, Norm Thompson Outfitters

During more than a year of testing recycled-content paper, some key lessons emerged:

- **Determine whether variances are statistically significant.** There is inevitably some randomness in the results of any test, so it would be unrealistic to expect an exact data match. Calculating the statistical significance (or insignificance) of variances between the test and control groups is thus critical to correctly interpreting the test results.
- **Test more than once.** Rather than making a decision based on just one data point, it is helpful to have several tests to draw from. Testing more than once helps resolve any anomalies in individual tests and establish a trend over time.
- **Select an appropriate sample size.** Sample sizes must be large enough for results to be statistically meaningful. The project team found that the larger the sample size was, the smaller the variance would be in response to recycled-content versus virgin paper.
- **Create a level playing field.** When conducting response tests, it is important to change only one thing (the paper) at a time and to control for all other variables. For example, during an early test the project team learned that in offset printing, it takes time for the press to return to optimal color reproduction (i.e., “come back up to color”) after changing paper. This affected the color quality of a significant percentage of the recycled-content test catalogs. In subsequent tests, the company specified that only catalogs printed after the press had returned to optimal color reproduction (i.e., “post-color OK”) should be included in the test and control groups.

The final step in incorporating recycled content into all of Norm Thompson Outfitters’ catalog paper was to change the order forms. Because the order form’s purpose is primarily informational, the company decided it was not necessary to conduct customer response tests as it had for the body and covers of its catalogs.

Still, the company wanted to see what the recycled-content order forms would look like before making a decision. For each catalog, the project team obtained samples of order forms printed on paper with 30% postconsumer recycled content (the maximum level available at price parity). After seeing the samples, the company was satisfied with their print quality, and decided to switch all catalog order forms from virgin to 30% postconsumer recycled content.

Summary of Paper Changes

In the spring and summer of 2001, Norm Thompson Outfitters' senior management accepted the following recommendations from the project team:

- Switch the body and cover of the Solutions® catalog to a 10% postconsumer recycled content sheet (announced in June 2001).
- Switch the body and cover of the Waterfront Living® catalog to a 10% postconsumer recycled content sheet.¹²
- Switch the body and cover of the Norm Thompson® catalog to a 10% postconsumer recycled content sheet.
- Switch all order-form paper to 30% postconsumer recycled content.
- Test 20% postconsumer recycled content paper in the body of the Early Winters® catalog and increase the recycled content of the cover to 60%.¹³
- Back-test virgin paper against recycled-content paper for several mailings in each catalog to monitor ongoing performance.

As of September 2001, back-tests of the Solutions® and Norm Thompson® catalogs continue to show equivalent customer response to virgin and 10% postconsumer recycled content paper. Norm Thompson Outfitters is committed to testing higher levels of recycled content as cost-competitive product options become available.

Table 4 shows the grades and levels of recycled content used in all of Norm Thompson Outfitters' catalog paper – at the beginning and end of this project.

Table 4: Postconsumer Recycled Content in Norm Thompson Outfitters' Catalog Paper

Catalog title	Paper Use	Paper Grade	As of 3/2000	As of 9/2001
Norm Thompson®	Cover	No. 3 coated freesheet	0%	10%
	Body	No. 3 coated freesheet	0%	10%
Solutions®	Cover	No. 3 coated freesheet	0%	10%
	Body	No. 4 coated groundwood	0%	10%
Early Winters®	Cover	No. 4 coated groundwood	50%	60%
	Body	No. 4 coated groundwood	10%	10%, Testing 20%
Waterfront Living®	Cover	No. 3 coated freesheet	Did not own title.	10%
	Body	No. 3 coated freesheet		10%
All catalogs	Order forms	Uncoated freesheet	0%	30%

Environmental Benefits of Recycled-Content Paper

By incorporating recycled content into all of its catalog paper, Norm Thompson Outfitters has achieved significant reductions in energy, wood, and water consumption; emissions of air and water pollutants; and solid waste.

As discussed earlier, switching to recycled-content paper benefits the environment in several ways:

- Using recycled instead of virgin pulp reduces the amount of wood necessary to produce paper, thus decreasing the adverse impacts of commercial forestry.
- Making recycled-content paper is generally cleaner and more efficient than making virgin paper, as it uses less total energy and releases fewer air and water pollutants.
- Recycling cuts the amount of trash that must be collected, transported, and disposed of in incinerators and landfills (where paper decomposes and creates methane, a potent greenhouse gas).

Table 5 shows the estimated annual reductions in environmental impacts from the company's switch to recycled-content paper, given its current paper consumption, grades of paper used, and levels of recycled content in that paper. The table also illustrates the magnitude of these benefits by showing them in relation to common activities that generate equivalent impacts.

Notes to Tables 5 and 6: Descriptions of Measures of Environmental Impacts.

Measures of Releases to Air:

- Greenhouse gases, including carbon dioxide (CO₂) from burning fossil fuels and methane from paper decomposing in landfills, are associated with climate change.
- Sulfur dioxide (SO₂) and nitrogen oxide (NO_x) emissions result from the burning of fuel in boilers, and contribute to air pollution problems like acid rain and smog.
- Particulates are small particles generated during combustion, and pose a range of health problems when inhaled.
- Hazardous Air Pollutants (HAPs) are a group of 189 substances identified in the 1990 Clean Air Act Amendments because of their toxicity.
- Volatile Organic Compounds (VOCs) are a broad class of organic gases, such as vapors from solvent and gasoline. VOCs react with nitrogen oxides (NO_x) to form ground-level ozone, the major component of smog.
- Total reduced sulfur compounds (TRS) cause an odor associated with kraft pulp mills.

Measures of Releases to Water:

- Biochemical oxygen demand (BOD) and chemical oxygen demand (COD) measure the potential for oxygen depletion in surface waters that receive wastewater from mills. High levels of BOD or COD can damage aquatic ecosystems.
- Total suspended solids (TSS) measure solid material suspended in mill effluent, which can adversely affect bottom-living organisms upon settling in receiving waters and can carry toxic heavy metals and organic compounds into the environment.
- Adsorbable Organic Halogens (AOX) are an indirect measure of the quantity of chlorinated organic compounds in mill effluent, many of which are toxic and may persist in the environment.

Source: Adapted from Paper Task Force report, pp 179-180 and glossary

Table 5: Environmental Benefits of Adding Postconsumer Recycled Content to Norm Thompson Outfitters' Catalog Paper

Environmental impact	Estimated annual reduction (increase)	Approximate annual equivalent
Wood use	4,400 tons of wood	Wood required to make copy paper for 94,000 people
Energy use	20 billion BTUs	Residential energy used by 190 households
Greenhouse gases (fossil fuel-derived CO ₂ from mills, methane from landfills)	2,070 tons of CO ₂ equivalents	Amount released by 360 cars ^a
Air pollutants	1,160 pounds of sulfur dioxide (SO ₂) 5,970 pounds of nitrogen oxides (NOx) 6,320 pounds of particulates 2,280 pounds of hazardous air pollutants 4,620 pounds of volatile organic compounds 380 pounds of total reduced sulfur	SO ₂ : 14 households ^b NOx: 110 households ^b
Water pollutants	(increase of 710 pounds of biochemical oxygen demand (BOD)) 3,090 pounds of total suspended solids (TSS) 74,850 pounds of chemical oxygen demand (COD) 1,430 pounds of adsorbable organic halogens (AOX)	Amount discharged by (BOD: 4 households) TSS: 14 households COD: 156 households
Wastewater	11.7 million gallons	Wastewater discharged by 120 households
Solid waste	990 tons	Trash generated by 460 households

Source: Alliance calculations updating Paper Task Force.¹⁴

^a Equivalents based on an average driving distance of 200 miles/week.

^b Equivalents based on average annual emissions for a \$50/month electricity bill.

Although these results are significant in themselves, far bigger environmental gains could be achieved if other catalog companies followed suit and switched to recycled-content paper.

Table 6 shows the benefits of switching 3.6 million tons of catalog paper – the industry’s paper consumption in 2000 – from virgin to 10% postconsumer recycled content. As higher levels of recycled content become readily available and used in catalog paper, even greater benefits will accrue.

Table 6: Environmental Benefits of Adding 10% Postconsumer Recycled Content to All Catalog Paper

Environmental impact	Estimated annual reduction (increase)	Approximate annual equivalent
Wood use	851,100 tons of wood	Wood required to make copy paper for 18.2 million people
Energy use	3.7 trillion BTUs	Residential energy used by 35,500 households (population of Santa Monica, CA)
Greenhouse gases (fossil fuel-derived CO ₂ from mills, methane from landfills)	501,100 tons of CO ₂ equivalents	Amount released by 87,600 cars ^a
Air pollutants	505,000 pounds of sulfur dioxide (SO ₂) 1,287,000 pounds of nitrogen oxides (NOx) 1,229,000 pounds of particulates 394,000 pounds of hazardous air pollutants 866,000 pounds of volatile organic compounds 62,000 pounds of total reduced sulfur	SO ₂ : 6,000 households ^b NOx: 24,400 households ^b
Water pollutants	(increase of 396,000 pounds of biochemical oxygen demand (BOD)) 337,000 pounds of total suspended solids (TSS) 12,788,000 pounds of chemical oxygen demand (COD) 231,000 pounds of adsorbable organic halogens (AOX)	Amount discharged by (BOD: 2,060 households) TSS: 1,500 households COD: 26,600 households
Wastewater	2.1 billion gallons	Wastewater discharged by 21,200 households
Solid waste	213,000 tons	Trash generated by 100,200 households (population of Louisville, KY)

Source: Alliance calculations updating Paper Task Force.¹⁵

^a Equivalents are based on an average driving distance of 200 miles/week.

^b Equivalents are based on average annual emissions for a \$50/month electricity bill.

Recycled Paper Economics – Past History and Future Prospects

Increasing the use of recycled-content paper not only will benefit the environment, but it also can help create more favorable economics for such paper – for both producers and users.

Currently, a lack of demand for recycled-content printing and writing paper – the category which includes coated and uncoated grades used in catalogs – is at the root of three kinds of inefficiencies that can make such paper more expensive to produce.

- **Structural inefficiencies.** Currently, although many coated paper mills have integrated (or on-site) virgin-pulping facilities, few have any integrated capacity to produce deinked pulp, the necessary ingredient in recycled-content paper. Such integrated virgin mills take a double hit when making recycled-content paper. First, they must buy deinked pulp on the open market, where it usually costs more than their own virgin pulp. Second, substituting deinked for virgin pulp displaces some of the capacity of their virgin pulping facilities, which, if this virgin pulp is not used or sold elsewhere, raises their costs per ton of production.
- **Production inefficiencies.** At present, most deinked pulp producers are not running at full capacity because demand is low, and so are forced to charge more per ton for the recycled pulp to recover their capital and operating costs. Similarly, paper mills that buy deinked pulp infrequently and in small quantities generally pay more than do regular, high-volume purchasers. Finally, paper mills that must switch back and forth between virgin and recycled-content paper production due to inconsistent demand may experience slowdowns or switching costs.
- **Technological inefficiencies.** To produce pulp of the quality required for use in printing and writing paper, most currently operating deinking facilities must use relatively expensive grades of recovered paper (because of their low degree of contamination) rather than much cheaper mixed office waste.¹⁶ While a few deinking mills in the United States and Europe can use a higher percentage of recovered mixed office waste and even groundwood papers to make pulp for printing and writing paper, they are still the exception rather than the rule.

Increased demand for recycled-content paper can address each of these inefficiencies and bring down production costs in both the short and the long term.

- In the short term, increasing production will improve the economics for deinking mills that are currently running at less than full capacity. As demand rises, a mill can spread its fixed costs over more units of production, thus lowering its costs per ton of production. Similarly, strong and consistent demand will allow paper mills to buy deinked pulp at better prices, and to avoid slowdowns and other costs due to switching back and forth between virgin and recycled-content paper.

- In the medium term, greater demand for recycled-content paper will spur further development of new technologies that allow less expensive grades of recovered paper to be used for printing and writing paper production.
- In the long term, sustained growth in the demand for recycled-content paper will encourage mills to invest in integrated deinking facilities, thus creating more structural efficiencies at each mill.

For any or all of this to happen, there must be evidence of strong and sustained demand for recycled-content paper.

Recycled-Content Paper Capacity: No Shortage of Supply

An issue of interest to any company considering a switch to recycled-content paper is the stability of its supply and price relative to virgin paper over time. Two questions that such paper purchasers often raise are “Is there enough recycled-content paper to meet my needs?” and “What will happen to prices if demand increases?”

Accordingly, the Alliance for Environmental Innovation, in cooperation with Conservatree¹⁷, another non-profit organization that promotes the use of recycled-content paper, undertook a study to gain a better understanding of the paper industry’s capacity to absorb an increase in demand for recycled-content paper. Preliminary results are summarized below and details are provided in Appendix B.

Finding #1: The demand for recycled-content coated paper remains extremely low.

In April and May 2001, the Alliance interviewed major North American suppliers of coated papers (see Table 2). These companies consistently reported virtually no demand for coated papers with recycled content, whether for catalogs, magazines, or other applications. The few exceptions were niche-market catalogs and publications for environmental groups and other environmentally conscious customers.

Finding #2: Paper mills can produce as much recycled-content coated paper as virgin.

Coated-paper suppliers interviewed by the Alliance said they could produce recycled-content paper at any of their mills, although some locations could do so at lower cost owing to their proximity to a source of deinked pulp. Economic considerations aside, suppliers said they could expand their production of recycled-content paper if demand increased, and that the amount of such paper they could produce was limited only by (1) the supply of deinked pulp, and (2) the overall capacity of their paper machines.

Finding #3: The supply of deinked pulp currently exceeds the demand.

Most deinking mills reported that they were running at less than full capacity. The average capacity utilization across all mills was 73%. Of the mills running at less than full capacity, all said they could easily expand production of deinked pulp to meet an increase in demand.

Conclusion: There is plenty of capacity to absorb an increase in demand for recycled-content catalog paper.

The Alliance and Conservatree estimate that in North America at least 360,000 tons per year of unused capacity is immediately available to produce deinked kraft pulp. If all of this deinked pulp were available to the catalog industry, nearly 5.4 million tons of catalog paper – well above the industry’s current consumption of 3.6 million tons per year – could be converted from virgin to 10% postconsumer recycled content.

However, demand for recycled-content paper is expected to grow in other printing and writing paper grades as well, and such grades would all tap into the same overall deinked pulp supply. If the unused deinked pulp were divided among the different grades according to their share of overall consumption, catalogs would be “entitled” to approximately 12.7%¹⁸ of the current supply. This amount of deinked pulp would still be enough to convert at least an additional 681,000 tons of catalog paper – nearly 20% of current consumption – from virgin to 10% postconsumer recycled content.

In sum, there is every reason to believe that recycled-content paper supply will respond quickly and efficiently to an increase in demand. In the short term, deinked pulp producers can increase their production, and in the medium to long term, with sustained demand to justify the investment, idle deinking facilities may be brought back online or new facilities built, creating still more capacity. Representatives of both deinking and paper mills with whom the Alliance and Conservatree spoke consistently expressed the view that it is the demand for recycled-content paper – not the capacity to produce it – that is lacking.

There are many links in the supply chain for recycled-content paper, including wastepaper brokers, deinking mills, paper mills, and paper buyers. From everyone’s perspective, a steady and sustained increase in demand for recycled-content paper is the best prospect for increasing production and capacity while smoothing out price fluctuations.

Recycled paper: past challenges, new opportunities

- In the 1980s and early 1990s, government directives and public pressure sparked interest in recycled-content printing and writing paper among producers and users.
- The paper industry responded by investing in deinking facilities.
- Paper prices peaked in the mid-1990s, putting recycled-content printing and writing paper (generally priced higher than virgin paper) out of reach of most buyers.
- After paper prices dropped, interest in recycled-content paper never returned to the same level. Government directives impacted few paper purchasers, and perceptions of poor performance based on early product introductions remained strong.
- Because of low demand for recycled-content printing and writing paper, many deinking facilities shut down, while others continue to operate well below capacity.
- In the past decade, the quality of recycled paper has significantly improved while price premiums have narrowed or disappeared.

3. IMPROVING PAPER EFFICIENCY

Norm Thompson Outfitters is taking the following steps to reduce paper use:

- Minimizing unwanted, misdirected, or undeliverable catalogs
- Eliminating the outer envelope used to mail requested catalogs
- Allowing customers to choose how often they receive catalogs

The best way to reduce the environmental impacts associated with paper is simply to use less of it. Less paper purchased means fewer resources used and fewer emissions generated to produce that paper, and less waste when the paper is thrown away.

Maximizing paper efficiency makes obvious business sense to catalog companies, for whom paper, printing and postage typically account for about 25% of total costs. Environmental considerations aside, any catalog company would be happy to use less paper and mail fewer catalogs if it could do so without hurting sales.

Early in the partnership, the project team met to brainstorm possibilities for reducing paper use while maintaining or increasing sales. Discussions focused on two areas:

- Improving list hygiene, i.e., the practices used to maintain accurate mailing lists.
- Modifying the catalog or the way in which it is delivered.

Improving List Hygiene

Mailing lists are at the heart of the catalog business. An up-to-date, “clean” list ensures that each catalog reaches its intended recipient. A poor list can result in duplicate catalogs going to the same address, catalogs going to the wrong address, or catalogs being undeliverable. All of these outcomes waste paper and create unnecessary printing and mailing costs.

Norm Thompson Outfitters works closely with its service bureau to ensure that all its catalogs are mailed to “deliverable” addresses. The company follows the latest research on list hygiene and will continue trying to improve its ability to mail to the right customer, at the right address and at the right time.

Norm Thompson Outfitters’ service bureau (Experian) uses a variety of means to avoid misdirected and undeliverable mailings:

- Addresses are converted to a standard format for correction and identification of duplicates.
- Zip codes, Zip + 4, and Carrier Route codes are corrected or appended to converted addresses. After several attempts to correct and code addresses using different processes, undeliverable addresses are dropped.
- The United States Post Office’s (USPS) National Change of Address database and several proprietary databases are used to update addresses prior to each mailing. New addresses are identified and changed. Old addresses with no known forwarding address (i.e., “nixies”) are removed from the mailing.
- The USPS’s Address Correction Service is used annually.
- A Merge/Purge process matches names and addresses from different lists and removes duplicate entries.
- The Direct Marketing Association’s mail preference service list is suppressed from mailing all catalogs.

Modifying the Catalog or its Delivery

Catalog companies sometimes follow the initial mailing of a given catalog with one or more remail catalogs (i.e., catalogs containing the same merchandise but presented in a different order or with a different cover). The frequency of mailings depends on the company, the type of merchandise, and the customer (people who frequently buy from catalogs typically receive catalogs more often than those who do not).

The project team explored ways to reduce paper consumption which ranged from modifying the catalog itself, to reducing the number of mailings, to devising new modes of contacting the customer. Some of the ideas generated were:

- Encouraging customers to save their catalogs, thereby eliminating a remail or replacing it with a postcard.
- Replacing remail catalogs with postcards asking customers to go to the company's web site.
- Eliminating duplicate mailings to the same customer (e.g., a customer gets a catalog in the mail or as a package insert, but not both).
- Creating specialized catalogs with fewer pages, mailed to selected customers according to their interests (e.g., men's or women's apparel, gifts).
- Eliminating the outer envelope used for mailing requested catalogs.
- Allowing customers to choose the frequency with which they receive catalogs.

The team looked for those options that were easy to implement and would save the most paper per customer. Creating specialized catalogs was ruled out as too resource-intensive an option to pursue in the short term. Similarly, the company's database did not enable tracking of customers that had received catalogs as package inserts, in order to remove them from subsequent mailings.

The options that the team decided to test and the results of those tests are as follows:

1. "Save this catalog"

This option involved printing a label or "snipe" on the front cover with the message "Save this catalog: it's the only one you will receive this season." Two test groups were used in the remail for that catalog. One group received a postcard with a purchase reminder, and the other group received nothing. The control group for the test received a regular catalog (no snipe) and a remail catalog. The results showed a statistically significant drop in demand from those customers who had received the postcard or nothing instead of the remail catalog.

The drop in demand outweighed any savings on paper and postage from replacing a remail catalog with a postcard. Therefore, Norm Thompson Outfitters decided not to pursue this option.

2. Web migration

The purpose of this test was to determine whether the company could identify those customers who usually bought from the company's web site, and to avoid sending them a remail catalog. This test has produced some interesting preliminary results, although data-tracking issues have hampered their interpretation.

Although there are no conclusive results to report to date, web migration remains an area of interest to Norm Thompson Outfitters, and the company will continue to test ways of increasing the electronic substitution of paper catalogs in the future.

3. Eliminating the outer envelope on requested catalogs

When a potential customer called to request a catalog, Norm Thompson Outfitters customarily placed the catalog in an envelope and enclosed a letter thanking the person for their request. The project team suggested a new format for mailing requested catalogs, which it tested in nine of its holiday 2000 catalog mailings, across its Norm Thompson®, Solutions®, and Early Winters® titles. The new format was simply a catalog marked with a special label ("Here's the catalog you requested") and a "blow-in" card thanking the potential customer for the request.

All nine of the test mailings showed statistically significant increases in customer response to the new format. Accordingly, Norm Thompson Outfitters decided to eliminate envelopes from all such mailings in the future. The company estimates that this step will result in an annual cost savings of more than \$50,000.

4. Preferred frequency options

Norm Thompson Outfitters felt it was important to honor customers' requests to receive fewer catalogs. While such requests are few, the company wanted to be able to deal with them when they arose, for reasons that have as much to do with good customer service as the environment.

Accordingly, the project team addressed what was essentially an information systems issue: creating a field in each customer's record to provide for special catalog delivery specifications. Implementation has been delayed because of a major systems conversion but is currently planned for the fall of 2002.

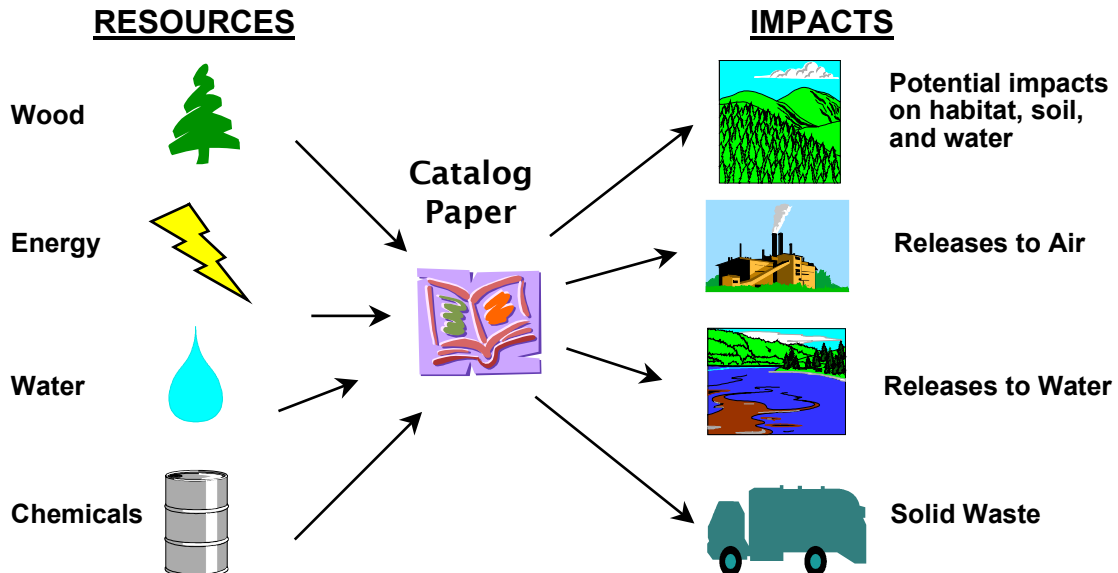
4. EVALUATING SUPPLIER PERFORMANCE

Project Results:

- Norm Thompson Outfitters is implementing an annual environmental performance review of its paper suppliers.
- Norm Thompson Outfitters is working with its suppliers, non-governmental organizations, and other paper purchasers to support progress on environmental issues related to paper.

Producing and disposing of paper for catalogs creates a range of environmental impacts, from the forest, where virgin fiber is obtained from trees, to the landfill or incinerator, where catalogs typically end their lives (see Figure 4).

Figure 4



As discussed in the previous section, incorporating recycled content significantly reduces the environmental impacts associated with paper. But because some virgin fiber still is necessary to maintain the physical properties of catalog paper, it also is important to reduce the environmental impacts associated with harvesting trees and manufacturing virgin pulp.

This section of the report addresses Norm Thompson Outfitters' efforts to work with its suppliers and others to promote environmentally preferable forest management and pulp and paper manufacturing practices.

Supporting Sustainable Forestry

Growing and harvesting trees for lumber or paper production can cause a variety of environmental impacts – from the destruction of habitat for plants and animals to the degradation of soil and water quality, which also affects human populations. Forests intensively managed for pulpwood or timber production may exhibit less biodiversity and experience a greater degree of soil degradation than do natural forests.¹⁹

There are two ways that catalog companies can help reduce the environmental impacts associated with commercial forestry. The first is to specify paper with recycled content. The higher the level of recycled content, the fewer trees will need to be harvested for paper, and the lower the environmental burden will be on forests. The second is to support good forest management practices for the virgin fiber that remains necessary to produce the paper.

The term *sustainable forestry* is typically used to mean protecting both the timber and non-timber values of a forest (e.g., biodiversity, soil and water quality, aesthetics). Specific practices may be good or bad depending on how and where they are applied, but the following are some fundamental goals of sustainable forestry:

- **Conserving biodiversity.** Both the amount and variety of plant and animal life can be protected by conserving rare forest types and habitat for endangered species, establishing wildlife corridors (undisturbed or minimally managed areas connecting larger forest preserves), and maintaining a diverse mix of tree species and ages in a given forest.
- **Protecting water quality.** Because forested watersheds are often the source of drinking water for cities and towns, maintaining water quality from forestry operations is critical. Buffer strips of trees bordering streams and other bodies of water help filter and absorb sediments, maintain shade, and protect fish and other wildlife habitats. In coastal areas, careful management of fresh water drainage from forests protects sensitive estuaries that serve as nurseries for fish and other aquatic organisms.
- **Protecting soil quality.** Less intensive harvesting methods can help minimize soil erosion, avoid overcompaction, and maintain soil temperature, moisture levels, and nutrient content.

Growing public concern

Paper companies' forest management practices have come under increased public scrutiny in recent years. Polls show that a strong majority of Americans are generally concerned about the environment and are specifically interested in habitat conservation.²⁰ A Yankelovich Partners poll in January 1999 found that 62.5% of American consumers believed that companies should not use or sell products made from wood harvested from old-growth forests and that 43.5% said they would be less likely to do business with a company using such wood. In addition, campaigns by activist groups against both forest products companies and their customers have raised the public visibility of forest management as an environmental issue.

As a result, several leading companies including The Home Depot, Lowe's Companies, and Kinko's have made public commitments not to buy forest products from environmentally sensitive areas. For catalog companies and other large paper purchasers, having a policy in place to address these issues is not only good for the environment; it also makes good business sense.

Understanding current practices

Forest management issues are complex. It takes time, resources, and expertise to gather information about paper suppliers' practices, make judgments about their performance, and consistently factor those judgments into purchasing decisions. Few – if any – catalog companies have the expertise to do this on their own. Fortunately, consultants and environmental groups working on forest management issues can provide advice and help evaluate suppliers.

Norm Thompson Outfitters is working with its suppliers to gain a better understanding of their forest management practices. It also has decided to engage a forestry expert to help evaluate those practices, so that it can include forest management practices along with other business and environmental criteria in its future purchasing decisions.

Even if a catalog company currently does not have the resources to hire outside expertise, it can still begin a dialog with its paper suppliers about forest management, visit its suppliers' forestry operations, and take other steps that signal its demand for paper made from sustainably harvested fiber.

Setting priorities for future progress

One of Norm Thompson Outfitters' goals is to ensure that its paper suppliers' forest management practices meet the highest environmental standards.

By talking to a variety of experts in the field – including other paper purchasers, independent experts, and environmental groups – the company has identified the following as priority areas for progress in the next several years:

- **Chain of custody control.** Less than one-third of the pulpwood consumed by the typical pulp mill in the United States comes from land owned by that company, with the balance coming from lands owned by other private landowners or public lands.²¹ Norm Thompson Outfitters will encourage its paper suppliers to know the sources of and practices employed to provide their pulpwood supply, and to ensure that the landowners, loggers, and others through whose hands the pulpwood passes use the best environmental practices.
- **Independent third-party certification.** Having their forest management practices certified by an independent third party helps paper suppliers provide credible and complete information to their customers. In the United States, standards for forest management include the American Forest and Paper Association’s Sustainable Forestry Initiative (SFI) and the Forest Stewardship Council (FSC). At present, FSC is more broadly accepted among environmental groups, while SFI is evolving in ways that may improve its acceptance among those groups. Norm Thompson Outfitters may request that its suppliers’ forest management practices be certified according to one of these standards. The company recognizes that this will take time and close cooperation with its suppliers.
- **Publication of annual sustainable forestry reports.** Paper purchasers need concise, reliable information about their suppliers’ forest management practices. Suppliers who are part of the American Forest and Paper Association’s Sustainable Forestry Initiative (SFI) submit this information annually, which is aggregated into a single public report. Norm Thompson Outfitters will request individual company reports from its paper suppliers.
- **Phasing out the use of pulpwood from “high conservation value” forests.** Such forests may contain rare, threatened, or endangered species or ecosystems; provide critical watershed protection or erosion control; or be of special cultural or ecological significance to local communities. Norm Thompson Outfitters will work with its suppliers to explore the feasibility and timing of such a phaseout.

Joining with other purchasers

Norm Thompson Outfitters believes that the key to sustained environmental improvement on forest management and other environmental issues is a coordinated and consistent demand signal from customers. To this end, the company has joined with other large users of forest products, through such organizations as Business for Social Responsibility and the Certified Forest Products Council, to engage suppliers in a constructive dialog with regard to forest management practices.

Supporting Cleaner Manufacturing

Catalog companies, like other large paper buyers, can play an important role in reducing the environmental impacts of pulp and paper manufacturing. By learning about their suppliers' environmental performance, and considering that performance in their purchasing decisions – along with product availability, price, and other factors – they can encourage their suppliers to keep pace with technological advances and to produce paper in the cleanest manner possible.

Norm Thompson Outfitters has begun gathering information about its suppliers' pulp and paper manufacturing processes, has established criteria for evaluating suppliers, and has set up a process for integrating environmental performance into future purchasing decisions.

Gathering information from suppliers

The project team's first step was to devise a system by which Norm Thompson Outfitters could establish a baseline for its suppliers' environmental performance and measure their progress in the future. Accordingly, the company has decided to implement an annual environmental review of its paper suppliers.

This annual review, to be conducted before commitments are made to suppliers for the next fiscal year's paper purchases, will include:

1. Gathering data about the manufacturing processes and releases to the environment at the mills that produce the company's paper, using the form in Appendix C.
2. Discussing environmental performance over the past year and expectations for future improvements.

Norm Thompson Outfitters also will ask prospective suppliers to provide the same environmental data when submitting product and pricing proposals.

Criteria for evaluating supplier performance

The project team's next step was to establish standards for evaluating suppliers' environmental performance relative to Norm Thompson Outfitters' expectations, and compared to their own performance over time.

Norm Thompson Outfitters' goal is to work with paper suppliers that have a vision of and commitment to the *minimum-impact mills*. Such mills minimize the consumption of natural resources (wood, water, energy), and minimize the quantity and maximize the quality of releases to air, water, and land.²² The minimum-impact mill is a dynamic concept, and can be achieved by using the most advanced manufacturing technologies, the most efficient mill operations, and the most effective environmental management systems.

When evaluating its suppliers' pulp and paper manufacturing practices, Norm Thompson Outfitters will look at the following:

1. Manufacturing Technologies

The first place to look for ways to reduce the environmental impacts of papermaking is in the pulping and bleaching processes for chemical pulp, in which the technology used can make a big difference in energy and water use, air and water pollution, and solid waste.

Table 9 shows the environmental hierarchy of pulping and bleaching processes for chemical pulp – with the shaded areas representing environmentally preferable options.

Table 9: Environmental Hierarchy of Pulping and Bleaching Processes

Process	How It Works	Environmental Advantages
Totally chlorine free (TCF)	Completely substitutes oxygen-based for chlorine compounds.	Further improves quality of wastewater. Enables virtually complete recovery and reuse of wastewater.
Enhanced ECF with ozone	Uses ozone as brightening agent in initial stages of bleaching process (final stage uses chlorine dioxide).	Further improves quality of wastewater. Reduces quantity of mill wastewater by 70% to 90% compared with traditional ECF. Enables recovery of most wastewater.
ECF with extended or oxygen delignification ("enhanced ECF")	Removes more of the lignin before bleaching, thus reducing energy and chemical use during bleaching.	Compared with traditional ECF, reduces energy consumption by 30%, improves quality of mill wastewater, and reduces quantity of mill wastewater by nearly 50%.
Elemental chlorine-free ("traditional ECF")	Replaces elemental chlorine with chlorine dioxide.	Improves quality of wastewater compared to elemental chlorine.
Elemental chlorine	Uses elemental chlorine to bleach pulp.	[Phased out as of April 2001 per EPA's Cluster Rule]

Source: Paper Task Force, Alliance updates

In the United States, the production of bleached kraft pulp is smallest at the top of the hierarchy and rises as one moves down (with the exception of elemental chlorine). While TCF accounts for approximately 25% of Scandinavian bleached kraft pulp production (the balance is ECF), there is currently only one TCF pulp producer in the United States.²³ Ozone processes are installed at only a few U.S. bleached kraft pulp mills, whereas extended and/or oxygen delignification technologies are more commonly found.²⁴ Traditional ECF is the most widely used bleaching process, and is the minimum standard allowed under the U.S. Environmental Protection Agency's Cluster Rule. Some mills that are in the process of completing the technology upgrades necessary to comply with the Cluster Rule may still be using some elemental chlorine.

2. Environmental management systems

Even the most advanced technologies cannot reach their full potential in reducing pollution if a mill is not run cleanly and efficiently; hence the need for an environmental management system (EMS). EMSs can contribute to better environmental performance by improving energy efficiency and controlling pollution.

In reviewing its suppliers' environmental management systems, Norm Thompson Outfitters will be looking at the procedures and mechanisms established by such systems for:

- Energy and water conservation.
- Spill prevention and control systems.
- Preventative maintenance.
- Emergency preparedness and response.
- Ongoing training for mill staff in process control to improve environmental performance.

3. Environmental compliance

For Norm Thompson Outfitters, compliance with existing environmental regulations is the minimal requirement for all its suppliers – the price of admission to the marketplace. If the minimum-impact mill represents the ever-rising ceiling on environmental performance, regulatory compliance is the floor.

As part of its annual environmental review of paper suppliers, Norm Thompson Outfitters will ask its suppliers to provide data on environmental releases from the mills that produce its paper. (Such data are publicly available from the permitting board of the state where each mill is located, so the company could obtain them independently if it wished.)

The primary purpose of reviewing these data is to determine whether a mill (or supplier) shows a trend of *continuous improvement* over time. Just as important as a mill's environmental report card in a given year is the supplier's commitment to maintaining strong performance into the future by keeping pace with technological advances and keeping its environmental releases well below regulatory limits.

5. NEXT STEPS

Norm Thompson Outfitters is committed to:

- Maximizing the postconsumer recycled content of its catalog paper
- Maximizing the efficiency of its paper use
- Incorporating environmental considerations into supplier selection

Continuing Environmental Progress at Norm Thompson Outfitters

Norm Thompson Outfitters is committed to using the highest level of recycled content in its catalog paper that meets its business needs.

Now that the company has proven the business case for paper with 10% postconsumer recycled content, its next step is to increase that level. Tests of paper with 20% postconsumer recycled content are under way in the Early Winters® catalog. If those tests are successful and if the company can find product options available at price parity, it will adopt this paper in Early Winters® and test higher levels of postconsumer recycled content in its other catalogs as well.

Norm Thompson Outfitters will continue working with its suppliers, fellow catalog companies, industry associations and non-governmental organizations to expand the use of recycled-content paper in the catalog industry. This is important not only because the environmental benefits from increasing recycled content grow as more companies make the switch, but also because building and sustaining demand is the key to a strong and stable market for recycled-content paper in the long term.

Our company has learned a great deal in this project. We would like to share what we've learned, and be a resource for other catalog companies on recycled-content paper and other environmental issues.

*-- Derek Smith,
Manager, Corporate Sustainability
Norm Thompson Outfitters*

The company will continue exploring ways to maximize paper efficiency, including further testing of electronic alternatives to paper catalogs. Finally, Norm Thompson Outfitters will continue to work in partnership with its suppliers and others to promote environmentally preferable forest management and cleaner pulp and paper manufacturing. This will include developing purchasing policies with regard to forest management practices and pulp and paper manufacturing processes.

Next Steps for Other Catalog Companies

The most important, and immediately actionable, step for other catalog companies is to switch to recycled-content paper. This may involve one or more of the following:

- Contacting suppliers regarding availability and pricing of recycled-content paper.
- Reviewing the findings from this project and contacting Norm Thompson Outfitters (503-614-4402 or dsmith@nortom.com) or the Alliance for Environmental Innovation (617-723-2996 or vmills@environmentaldefense.org) with any questions.
- Testing customer response to recycled-content paper.
- Converting catalog paper to a minimum of 10% postconsumer recycled content, and raising the level of postconsumer recycled content over time.

Catalog companies may also wish to review their own catalog circulation policies and look for ways to improve list hygiene and reduce paper use.

Finally, catalog companies can begin or expand a dialog with their paper suppliers about forest management practices and pulp and paper manufacturing processes, thus improving their ability to factor environmental considerations into their paper purchasing decisions.

Other Resources

A comprehensive resource for paper purchasers wishing to understand and minimize the environmental impacts of their paper use is “Paper Task Force Recommendations for Purchasing and Using Environmentally Preferable Paper,” ©1995 Environmental Defense. The report, including December 2000 updates to the lifecycle environmental data, is available at www.environmentaldefense.org/pubs/Reports/ptf or by calling (202) 387-3500.

The following is a partial list of organizations that offer information and assistance to paper purchasers with regard to environmentally preferable paper:

- Alliance for Environmental Innovation (www.environmentaldefense.org/alliance)
- American Forest and Paper Association (www.afandpa.org)
- Business for Social Responsibility (www.bsr.org)
- Certified Forest Products Council (www.certifiedwood.org)
- Conservatree (www.conservatree.com)
- Green Seal (www.greenseal.org)
- National Recycling Coalition (www.nrc-recycle.org)
- Recycled Paper Coalition (www.papercoalition.org)
- Recycled Products Purchasing Cooperative (www.recycledproducts.org)
- ReThink Paper (www.rethinkpaper.org)
- U.S. Environmental Protection Agency, WasteWi\$e program (www.epa.gov/epaoswer/non-hw/reduce/wstewise/index.htm)

Appendix A: Availability of Recycled-Content Coated Paper from Major North American Suppliers

Rank	Supplier	Grades offered with at least 10% postconsumer recycled content	Offset/Rotogravure Availability	Standard pricing for 10% postconsumer recycled content
1	International Paper	No. 1 (by inquiry only), No. 2, No. 3, No. 4, No. 5, Supercalendered	No. 1-2: offset only No. 3, 4, 5, and SC: both	Subject to negotiation
2	Stora Enso NA	No. 1, No. 2, No. 3, No. 4, No. 5, Supercalendered	All available in offset. No. 5 available in both offset and rotogravure	No. 1-3: no premium No. 4-5, SC: subject to negotiation
3	Mead	No. 1, No. 2, No. 3, No. 4	Offset only	No. 1: no premium No. 2: none for sheet-fed: subject to negotiation for web No. 3-4: subject to negotiation
4	Sappi Fine Paper NA	No. 2, No. 3	Both offset and rotogravure	Subject to negotiation
5	Westvaco	No. 1-2, No. 3	Offset only	Subject to negotiation
6/7	UPM Kymmene (formerly Blandin, Repap)	No. 4, No. 5	Both offset and rotogravure	Subject to negotiation
8	Potlatch	No. 1, No. 2, No. 3	Offset only	No premium
9	Bowater	No. 5	Bowater: Gloss: both offset and rotogravure Valuprint gloss: offset only	Bowater Gloss: subject to negotiation Valuprint Gloss: no premium
10	Crown Vantage	No. 4, No. 5	Offset only	No premium
11	Appleton Coated	No. 1, No. 2, No. 3	Offset only	No premium
12	Domtar	No. 2, No. 3	Offset only	No premium
13	Weyerhaeuser	No. 5	Offset only	Subject to negotiation
14	Pacifica	Does not offer coated papers with recycled content		
15	West Linn	No. 2, No. 3	Offset only	No premium
16	Fraser Papers	Information not available		
17	Provincial Papers	No. 2, No. 3	Offset only	No premium
18	Pasadena Papers	No. 2	Both offset and rotogravure	Subject to negotiation
19	Kruger	No. 5, Supercalendered	Both offset and rotogravure	No premium
20	Inexcon Maine	Does not offer coated papers with recycled content		

Sources: List of suppliers from Pulp & Paper 2000 North American Factbook (page 213). Product and pricing information from Alliance conversations with suppliers, May and August 2001. Catalog companies should verify information directly with suppliers.

Appendix B: Recycled Paper Capacity Study
Alliance for Environmental Innovation and Conservatree
Preliminary Findings (October 2001)

I. Background

The Alliance for Environmental Innovation, in cooperation with Conservatree, another non-profit group, have undertaken a study to gain a better understanding of the paper industry's capacity to absorb an increase in demand for recycled-content paper. The Alliance for Environmental Innovation and Conservatree are independent, unaffiliated organizations. For more information about Conservatree, please visit www.conservatree.com.

In the first phase of the study, conducted in the spring of 2001, the Alliance interviewed major North American coated paper suppliers to find out what products they currently offer with recycled content, how those products are priced compared to virgin paper, and what it would take for them to increase their production of recycled-content paper. Information gathered during those interviews is presented in Section 2 of this document ("Increasing recycled content").

Coated paper suppliers interviewed by the Alliance consistently identified deinked pulp supply as the major factor limiting their capacity to produce recycled-content paper. Thus, the Alliance and Conservatree sought to understand (a) how much deinked pulp is currently being produced in North America, and (b) the maximum that could be produced, given sufficient demand. The difference could be used to estimate how much *more* recycled-content paper North American suppliers could produce in the short term, if demand went up.

II. Interviews with deinking mills

From July through September, 2001, the Alliance for Environmental Innovation and Conservatree interviewed representatives of North American deinked kraft pulp mills. These included non-integrated deinking mills, as well as deinking mills integrated to printing and writing paper mills. The mills contacted are listed in Table B-1.

The Alliance for Environmental Innovation and Conservatree gathered the following information from these mills:

- Rated capacity and actual capacity, if different.
- Current production (average over the last 12 months).
- Grades of recovered paper used, and average pulp yield.
- Percentage of postconsumer fiber in their deinked pulp.
- Market segment (i.e., paper grades in which their deinked pulp is used).
- Pricing and quality of deinked pulp compared to virgin pulp.
- Ability to increase production of deinked pulp.

The Alliance and Conservatree agreed to publish information only in the aggregate, and to treat as confidential individual mills' capacity and production data, as well as any other mill-specific information not otherwise available from public sources.

Table B-1: Deinking mills interviewed

Non-Integrated Deinking Mills		
American Fiber Resources, L.P.	Fairmont	WV
Burrows Paper Corp.	Little Falls	NY
Cascades Auburn Fiber, Inc.	Auburn	ME
Desencrage C.M.D. Inc.	Cap-de-la-Madeleine	QUE
Les Fibres Breakey Fibres	Breakeyville	QUE
Duluth Recycled Pulp Mill	Duluth	MN
Fox River Fiber Co.	De Pere	WI
Great Lakes Pulp & Fibre Inc.	Menominee	MI
Mississippi River Corp.	Natchez	MS
Re-Box Packaging Inc.*	De Pere	WI
Deinking Mills Integrated to Printing and Writing Paper Mills		
Appleton Papers Inc.	West Carrolton	OH
Boise Cascade Corp.	Jackson	AL
Domtar Papers Ltd.	Cornwall	ON
Inter Lake Fibers	Appleton	WI
International Paper Co.	Selma	AL
International Paper Co.	Corinth	NY
International Paper Co.	Franklin	VA
Kerwin Paper Co.*	Appleton	WI
P.H. Glatfelter Co.	Neenah	WI

* Capacity and production data not available at press time; not included in analysis.

Source for deinking mills: 2001 Lockwood-Post's Directory of the Pulp, Paper and Allied Trades

III. Information gathered from deinking mills

During their interviews, the Alliance and Conservatree learned that:

- Most deinking mills were running at less than full capacity. The average capacity utilization across all mills was 73%.
- Of the mills running at less than full capacity, all said they could easily expand their production of deinked pulp to meet an increase in demand.
- The supply of recovered paper, the raw material for making deinked pulp, was not a significant concern to deinked pulp producers. Some of the recovered paper collected in the United States is sold overseas, which lowers supplies here at home. Generally, the deinked-pulp producers felt that under current market conditions, wastepaper collection might take only a few months to respond to an increase in demand. The recovery rate for printing and writing paper is now 41%,¹ so there is plenty left to collect.

Table B-2 shows the total capacity, current production, and unused capacity to produce deinked pulp for the mills interviewed to date by the Alliance and Conservatree. The numbers have been adjusted to reflect the postconsumer recycled content of the pulp. For example, if a mill produces pulp with 85% postconsumer recycled content, both the capacity and production numbers have been multiplied by 85%, in order to calculate correctly the amount of paper with postconsumer recycled content that could be produced from that pulp.

¹ "Paper Recovery Progress Report," American Forest and Paper Association, May 2001.

Table B-2: North American Capacity and Production of Deinked Kraft Pulp (Postconsumer)

Current deinked pulp supply (totals)	Tons per year (estimated)
North American capacity	1,261,000
Current production	901,000
Unused capacity	360,000

Source: Alliance/Conservatree interviews with deinking mill representatives, July-Sept 2001

IV. Estimates of additional capacity to produce recycled-content catalog paper

At 10% postconsumer recycled content, 360,000 tons of deinked pulp can produce a large amount of catalog paper. Table B-3 shows the Alliance and Conservatree's estimates of the maximum and minimum amount of catalog paper that could be converted from virgin to 10% postconsumer fiber.

Table B-3: Current North American capacity to produce recycled-content catalog paper*

Amount of catalog paper production	Tons per year (estimated)
Theoretical maximum amount if <i>all</i> unused deinked pulp capacity were available for catalogs	5,360,000
Minimum amount if only 12.7% of unused deinked pulp capacity is available for catalog paper.	681,000

* Assumes 10% postconsumer recycled fiber, and total fiber content in catalog paper of 67.12% (weighted average across different grades).

The theoretical maximum amount in Table B-3 assumes that all currently unused deinked pulp capacity is available to the catalog industry. Note that the nearly 5.4 million tons of catalog paper that could be converted from virgin to 10% postconsumer recycled content based on this assumption is half again as much as the industry's current consumption of 3.6 million tons per year. This scenario is not entirely realistic, however, since demand for recycled content-paper is expected to grow in other printing and writing applications as well, and such grades would all tap into the same overall deinked pulp capacity.

A more conservative estimate assumes that the unused deinked pulp capacity is divided among the different printing and writing grades according to their share of overall consumption. In 2000, catalogs accounted for about 12.7% of U.S. printing and writing paper production.²⁵ Thus, at a minimum, there is enough deinked pulp to convert an additional 681,000 tons per year of catalog paper – nearly 20% of current consumption – from virgin to 10% postconsumer recycled content.

V. Next Steps

The Alliance and Conservatree believe that the above estimate of unused North American deinked pulp capacity is **conservative**, for the following reasons:

- It includes only deinked kraft pulp from currently operating mills (non-integrated or integrated to printing and writing paper mills). There is significant additional capacity to produce deinked kraft pulp that is currently mothballed, but pulp from idle facilities was not included in the analysis.

- It does not include pulp from deinking mills that are integrated to tissue mills. Such mills are another potential source of deinked kraft pulp for recycled-content paper, if they can sell excess pulp on the open market.

The next phase of this study will look at additional capacity to produce deinked pulp from these sources.

Appendix C
Norm Thompson Outfitters
Paper Supplier Evaluation Form

Please complete and return to Derek Smith, Corporate Sustainability Manager (503-614-4402). Attach separate pages as necessary. This information is solely for Norm Thompson Outfitters' internal use to evaluate and compare suppliers' environmental performance over time.

I. Part I: Paper Supplier Information

Completed by: _____ Date: _____

Company Name:

Paper Purchased by Norm Thompson:

Amount Purchased by Norm Thompson:

Location of mill where paper is produced:

1. What is the composition of the paper you supply to Norm Thompson?

Chemical pulp: _____% (Hardwood: ____% Softwood: ____%)

Semichemical and Mechanical pulp: _____% (Hardwood: ____% Softwood: ____%)

Recycled pulp: _____% (Postconsumer fiber: _____%)

Coatings/fillers/moisture: _____%

TOTAL: 100%

2. For the paper you supply to Norm Thompson, how much of the pulp you use is

	Produced at your mill	Acquired from another source (please specify sources)	Total
Chemical			100%
Semichemical, Mechanical			100%
Recycled			100%

Part II: Pulp Supplier Information

Please answer the remaining questions for each source of pulp used in Norm Thompson's paper. Where there are multiple pulp sources, have each source submit a separate response.

Name of Pulp Mill:

Location of Pulp Mill:

Contact:

Amount of pulp supplied annually:

Type of pulp produced (check):

Chemical

Semichemical or Mechanical

Please specify type, e.g., TMP, CTMP, BCTMP: _____

Recycled

For chemical pulp mills:

1. How many bleach lines are in place at the mill?
2. For each bleach line, what is the pulping and bleaching sequence?
3. At what stage in the bleaching process are the filtrates from the first bleaching and extraction stages recirculated to the chemical recovery system?

For mechanical, semichemical, or recycled pulp mills:

4. What bleaching or brightening agents are used, if any?

9 (a) Indicators of general environmental performance: please complete for all pulp mills.

Values for these indicators reflect manufacturing technology used by mill and effectiveness of pollution-control equipment	1998 Supplier Annual Monthly Average	1998 Supplier Process Variability (%)	1999 Supplier Annual Monthly Average	1999 Supplier Process Variability (%)	1999 Supplier Annual Monthly Average	1999 Supplier Process Variability (%)
Biochemical Oxygen Demand (BOD) (kg/metric ton of final product)						
Color (kg/metric ton of final product)						
Fresh Water Use (gallons/ton of final product)						
Sulfur Dioxide (SO ₂) (pounds/ton of final product)						
Nitrogen Oxides (NO _x) (pounds/ton of final product)						
Total Reduced Sulfur Compounds (pounds/ton of final product)						
Total Energy Consumption (millions of BTUs/ton of final product)						
Purchased Energy Consumption (millions of BTUs/ton of final product)						
Particulates (pounds/ton of final product)						
Carbon Dioxide (CO ₂) or equivalent (tons/ton of final product)						
Hazardous Air Pollutants (HAPs) (pounds/ton of final product)						
Volatile Organic Compounds (VOCs) (pounds/ton of final product)						
Total Suspended Solids (TSS) (kg/metric ton of final product)						

9 (b) Environmental performance indicators for bleached kraft pulp mills: please complete if applicable.

Values for these indicators reflect: <ul style="list-style-type: none"> Performance of pollution prevention technologies Progress toward minimum impact mill 	1998 Supplier Annual Monthly Average	1998 Supplier Process Variability (%)	1999 Supplier Annual Monthly Average	1999 Supplier Process Variability (%)	2000 Supplier Annual Monthly Average	2000 Supplier Process Variability (%)
Bleach Plant Effluent Flow (gallons/ton of air-dried pulp)						
Adsorbable Organic Halogens (AOX) (kg/metric ton of air-dried pulp)						
Chemical Oxygen Demand (COD) (kg/metric ton of air-dried pulp)						
Dioxins (in bleach plant filtrates) (picograms/liter of water)						

10. Please provide details of any non-compliance incidents in the last three years. Summarize the degree of non-compliance, enforcement actions taken (if any) fines paid (if any), and steps taken to correct the problem.

1998: _____

1999: _____

2000: _____

-
- ¹ Economic Impact: U.S. Direct Marketing Today. © 2000 The Direct Marketing Association. www.the-dma.org/library/publications/libres-ecoimpact2.shtml.
- ² Catalog circulation from Resource Information Systems, Inc., April 2001. U.S. population in 2000 from www.census.gov. Catalog circulation includes consumer and business-to-business catalogs.
- ³ Catalog paper consumption from Resource Information Systems, Inc., April 2001. Printing and writing paper production from Pulp & Paper 2000 North American Factbook, page 15.
- ⁴ Catalog paper consumption in 2005 (projected) from Resource Information Systems Inc., April 2001.
- ⁵ Dept. of Energy, Energy Information Associations Manufacturing Energy Consumption Survey (MECS) 1998. The pulp and paper industry consumed 2,747 trillion BTUs in 1998, making it the third most energy-intensive major industry group behind petroleum and coal products and chemicals. The total manufacturing energy use was 23,796 trillion BTUs.
- ⁶ "Clean Technologies in U.S. Industries: Focus on the Pulp and Paper Industry." United States-Asia Environmental Partnership (Washington, DC: September 1997).
- ⁷ TRI On-site and Off-site Reported Releases (in pounds), All Chemicals By Industry, U.S., 1999. www.epa.gov/triexplorer.
- ⁸ "Municipal Solid Waste Generation, Recycling, and Disposal in the United States: Facts and Figures for 1998." U.S. Environmental Protection Agency, April 2000. www.epa.gov/osw.
- ⁹ Paper Task Force Recommendations on Purchasing and Using Environmentally Preferable Paper, © 1995 Environmental Defense Fund, is available at www.environmentaldefense.org/pubs/reports/ptf. Paper Task Force members were Duke University, Environmental Defense, Johnson & Johnson, McDonald's, the Prudential Insurance Company of America, and Time Inc.
- ¹⁰ Greener Catalogs: Improving Paper Practices in the Catalog Industry, © 1999 Alliance for Environmental Innovation. The report is available at www.environmentaldefense.org/Alliance/catalogs.pdf.
- ¹¹ Paper Task Force report, p. 66.
- ¹² Because this title's products and graphical style are similar to Solutions[®], Norm Thompson Outfitters decided not to conduct customer response tests in Waterfront Living[®].
- ¹³ The shift to 60% postconsumer recycled content in the cover paper was due to a change in suppliers.
- ¹⁴ The Paper Task Force report and December 2000 updates to lifecycle environmental data are available at www.environmentaldefense.org/pubs/Reports/ptf. Data reflect the following additional assumptions: (1) impacts of coating materials are not included; (2) systemwide impacts of groundwood paper are an average of the systemwide impacts of office paper and newsprint, reflecting the mix of mechanical and chemical pulp in this paper; (3) catalogs are recycled in a "closed loop" system, that is, recovered catalogs are used to make paper for new catalogs.
- ¹⁵ Ibid., with breakdown of catalog paper consumption by grade as provided by Resource Information Systems Inc., in Analysis of U.S. Printing and Writing Paper Usage in the Catalog End-Use, April 2001.
- ¹⁶ Alliance and Conservatree interviews with deinking mills, July-September 2001.
- ¹⁷ The Alliance for Environmental Innovation and Conservatree are independent, unaffiliated organizations. For more information about Conservatree, please visit www.conservatree.com.
- ¹⁸ Catalog paper consumption as a percentage of U.S. printing and writing paper production, 2000 (see note 3).
- ¹⁹ Paper Task Force report, pp. 134, 138.
- ²⁰ According to a nationwide survey by the *Los Angeles Times* in April 2001, 90% of respondents said it was important that wilderness and open spaces be preserved. Strong majorities supported greater protection of public lands and wildlife. According to the Gallup organization's annual Earth Day poll (April 2001), 77% of Americans worry about the quality of the environment, and 42% worry a great deal.
- ²¹ Smith, Brad W. et al., *Forest Resources of the United States*, USDA Forest Service, 2001.
- ²² Paper Task Force report, p. 189.
- ²³ Scandinavian bleached pulp production from Alliance for Environmental Technologies, *Trends in Bleached Chemical Pulp Production: 1999-2000*. The one TCF pulp mill in the United States is Samoa Pacific Cellulose in Samoa, CA.
- ²⁴ 2001 Lockwood-Post's Directory, and Alliance interviews with bleached kraft pulp mills, summer 2001. Ozone is used in the hardwood bleached kraft pulp line at Stora Enso North America's Wisconsin Rapids, WI mill, and in one bleached kraft pulp line at International Paper's Franklin, VA mill.
- ²⁵ Catalog paper consumption as a percentage of U.S. printing and writing paper production, 2000 (see note 3).