INK JET PHOTOS CAN LAST FOR YEARS—OR A FEW MONTHS, DEPENDING ON THE PRINTER, INK, AND PAPER. WE IDENTIFY THE BEST PRODUCTS AND DEALS. BY ANUSH YEGYAZARIAN

Both the paper you choose for your ink jet printer and the ink you use with your hardware make a big difference in whether your snapshot will last or will fade within a year or two—and sometimes whether it will print well at all.

Fortunately, since we first looked at photo-print longevity last year (see find.pcworld.com/31094), manufacturers have made big improvements. For $152, you can buy HP’s Deskjet 5550, a PC World Best Buy this month (see Top 10 Printers, page 149), which produces great-quality prints that should last over 70 years—with the right paper and ink (see “Somewhere Your Prints Will Fade,” page 20), and with the proper care.

As consumers switch from film cameras to digital models in droves, more and more people are expected to face these choices. Lyra Research, which covers the imaging industry, says that 61 percent of PC-owning households print digital photos, and photo printing even accounts for 10 percent of printer usage among people without digital cameras.

To evaluate the best printer/ink combinations this year, we again worked with Wilhelm Imaging Research (www.wilhelm-research.com), an Iowa-based firm whose founder, Henry Wilhelm, has been researching the topic for more than 10 years. Wilhelm employs special high-intensity lighting and temperature techniques to accelerate the aging process and project print longevity. This year he looked at the latest crop of printers, inks, and papers from the leading printer manufacturers—Canon, Epson, Hewlett-Packard, and Lexmark—to see which produce the longest-lasting prints.

For the first time, the study also tested five common third-party papers sold at computer and office-supply stores. We found some to be fairly good bargains, combining lower cost with acceptable print longevity. Many third-party papers won’t last or will fade within a year, and in some cases the print quality is so poor, you wouldn’t want them around anyway (see “Does Low-Cost Paper Last?” above).

FEW BARGAINS

For the best longevity and quality, the Wilhelm study confirms that you’re better off with the manufacturer’s recommended papers and inks instead of the typically cheaper third-party brands.

Bargains do exist: In a few cases, the study shows prints on third-party papers were projected to last as long as 12 and sometimes even more than 20 years (all reported results are for prints framed under glass in a fairly bright room—see find.pcworld.com/31136 for details on the testing procedures). But in many more instances, photos either were not projected to fade within a couple of years or didn’t print well in the first place. The inks dried improperly and ended up pooling or smudging on nearby paper; in some cases the photos exhibited defects such as bronzing, in which blacks and other colors take on a metallic sheen. Still, using inexpensive paper for test prints might make sense. Moreover, paper that works well with one printer may not work well with others. For example, pictures printed on Kodak’s.87-cent-per-sheet Ultima Paper Picture High Gloss were projected to last 21 years with HP’s printers—a good showing—but just 3 years with some printers from Lexmark and Epson, respectively. Prints from Canon’s $9.90 and $9.99 series should last for about 7 years, but the Kodak paper didn’t absorb the ink properly—it puddled on the surface and never dried as it should have.

Hammermill’s Jet Print Photo Professional paper did reasonably well with Canon printers, yielding prints rated to last about 12 years, and was fairly good with HP and Epson printers, producing prints projected to last 8 and 4 years, respectively. With Lexmark’s printers, however, neutral colors ended up bronzing. At 50 cents per sheet, it was also the second-most-expensive third-party paper that we saw. (We dropped Jet Print Photo Multi-Project Photo Paper from the study because it yellowed after exposure to light.)

Prints on CompUSA-brand papers had good fade resistance, they were estimated to last over 20 years with HP’s printers. But the papers contained problems absorbing inks and drying properly, or they distorted colors.
SOMEDAY YOUR PRINTS WILL FADE

<table>
<thead>
<tr>
<th>PRINTER/INK</th>
<th>Paper</th>
<th>Price per page (cents)</th>
<th>Estimated permanence rating (years)</th>
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</thead>
<tbody>
<tr>
<td>Lexmark Z55 ($129), Z65 ($170)</td>
<td>Lexmark black cartridge ($30); standard color cartridges ($34)</td>
<td>$0.30</td>
<td>3</td>
</tr>
<tr>
<td>HP #56 black ($20), #57 tricolor ($35)</td>
<td>HP Deskjet 5550 ($152); Photosmart 7150 ($180), 7350 ($250), 7550 ($400) printers</td>
<td>$0.30</td>
<td>10</td>
</tr>
<tr>
<td>Canon black cartridge ($25), color cartridge ($22)</td>
<td>Epson Stylus Photo 2200 ($699)</td>
<td>$0.45</td>
<td>2</td>
</tr>
<tr>
<td>Epson Stylus Photo 785EPX ($149)</td>
<td>Canon S900 Bubble Jet Photo Printer ($349), S9000 ($499)</td>
<td>$0.59</td>
<td>27</td>
</tr>
<tr>
<td>Canon BCI-6 ($72 for six individual colors)</td>
<td>Canon S9000 ($499)</td>
<td>$0.59</td>
<td>27</td>
</tr>
</tbody>
</table>

The Kodak and CompUSA papers couldn’t handle the 2200’s inks properly, and so were not included in the results. The Jet Print Photo and Staples papers did very well with this printer. Their print life was projected to be approximately 30 years. (As we went to press, these longevity tests were still in progress.)

**PRINTS AND PAPER**

Why do results vary so much with different printer-and-paper combinations? It’s all in the chemistry. Each printer manufacturer has its own set of formulas and creates products that work together to give the best results.

HP has made a particularly noteworthy breakthrough by creating new papers and inks for the company’s Deskjet 5550, as well as its Photosmart 7150 ($180), 7350 ($250), and 7550 ($400) printers. Using dye-based inks—including a specially developed magenta—and a new Premium Plus Photo Paper (Glossy), HP’s printers produced prints that Wilhelm’s study projected to last for 73 years. That kind of longevity rating was previously exclusive to pricey archival products such as Epson's Stylus Photo 2000P ($899) and 2200 ($699)—and to the best traditional prints from film.

What’s more, in PC World’s tests of the Deskjet 5550, we found its photo quality among the best we’ve seen. The model also offers good speeds and reasonable ink costs of 4.4 cents per page for text and 11.1 cents for graphics. For the best photos, though, you’ll have to pay for the premium papers, which run about 80 cents per sheet and is one of the more expensive we tested.

One snag: HP’s system has three different ink cartridges, and with the low-cost Deskjet you will have to switch them manually—it can handle only two at a time. The defaults are the regular #56 black and the standard color cartridges, not the #58 photo cartridge (which includes special black, magenta, and cyan inks and must be purchased separately, as it does not come with the printer). You do get the #58 photo cartridge (but not the #56 black) with the company’s Photosmart printers, along with other amenities like digital-camera media-card slots (for easy printing) or preview screens (on the 7550, which also chooses between the inks for you). You will pay more for these units, however.

Both Canon’s printers and Epson’s dye-based Stylus Photo printers make prints with good projected longevity: for example, up to 38 years for the $499 Canon S9000 Bubble Jet Photo wide-format printer (see find.pcworld.com/31097) and 27 for the $1149 Epson Stylus Photo 785EPX (see find.pcworld.com/11097), often with good print quality as well. (Results apply to other Canon and Epson printers that use the same inks and papers.) But for the longest-lasting prints, you must spend 77 cents per sheet for Epson’s paper and a pricey 93 cents per sheet for Canon’s. Still, Epson’s $99 Stylus Photo R20 is such a good value that you may

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**HOW WE TESTED**: Tests conducted by Wilhelm Imaging Research are results predicted by PC World’s Wilhelm Imaging Research tests on digital prints—they are carefully prepared and dried for two weeks in a controlled environment, then exposed to high-intensity fluorescent light at a constant temperature and humidity. Some of them are accelerated tests that replicate a “real-world” display condition of fairly bright room illumination 4 feet far the 12 hours per day with prints frame under glass. For details on test methodology, see the pcworld.com/31097. All papers are 10 by 10 inches unless otherwise noted in the table. Each manufacturer’s ink cartridge is of unique size—size of Epson’s dye-based inks is mounted in a tray on the front of the printer. Portion of a page’s life that will have to switch them manually—it can handle only two at a time. The defaults are the regular #56 black and the standard color cartridges, not the #58 photo cartridge (which includes special black, magenta, and cyan inks and must be purchased separately, as it does not come with the printer). You do get the #58 photo cartridge (but not the #56 black) with the company’s Photosmart printers, along with other amenities like digital-camera media-card slots (for easy printing) or preview screens (on the 7550, which also chooses between the inks for you). You will pay more for these units, however.

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not mind the high paper costs.
Costs are higher for prints with the longest life expectancy. Epson’s new high-end photo printer, the 2200, boasts the longest projected print life in this study—more than 90 years—but it costs $699 and paper for prints projected to last longest costs about $1.25 per sheet. This printer is the first model in the mainstream market to print in seven colors (see find.pcworld.com/31106), and it uses new pigment-based UltraChrome inks that produce images that are more vibrant than those from the 2000P.

Those new inks do sacrifice some longevity: In last year’s study the 2000P produced images that were projected to last more than 100 years with each of the tested papers, while the 2200’s prints should last over 90 years with specialty watercolor paper—but only from 30 to 50 years with all-purpose (and cheaper) glossy and matte papers. Still, all of the 2200’s prints should last about as long as the best traditional photographs.

At the other end of the longevity spectrum are Lexmark’s Z55 ($129) and Z65 ($170) Color Jetprinter models. But even Lexmark has improved its inks since the last study: Prints made with the recommended Ilford Printasia Photo Glossy Paper should last six years, compared to less than one year with the Kodak Premium Picture Paper and the Z52 printer tested last year. (Lexmark is the only printer vendor in this group that does not have its own photo paper.) Lexmark’s printers are fairly inexpensive and have been well rated in PC World tests (see Top 10 Printers, page 149). Overall, we found that you don’t have to break the bank to create long-lasting prints. Advances by HP and other companies mean that you can create prints with extremely long life expectancy by using a printer that costs just $150.

In addition, Epson is working to bring pigment inks into the mainstream with its new $149 Stylus C88 (which also made our Top 10 chart this month). The company markets this four-color ink jet printer as a general-purpose model and not as a photo printer (which is the reason we excluded it from this study), but its prints are rated to last for up to 80 years, depending on the paper. If the Stylus C88 is successful, Epson may introduce a six-color version into its Stylus Photo line.

You can also save some money by using third-party papers, though you will have to experiment to see which brands work with your printer. The bottom line: Select your printing hardware and supplies carefully, because printers, inks, and papers are not created equal.

PHOTO PRINTING OPTIONS PROLIFERATE

How should you print your pictures? Here’s a quick snapshot of the most popular methods, with prices, pros, and cons.

<table>
<thead>
<tr>
<th>OPTION</th>
<th>Print costs†</th>
<th>Pros</th>
<th>Cons</th>
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</thead>
<tbody>
<tr>
<td>Film photo processors</td>
<td>$0.30 for 4x6, $0.35 for 8x10, $0.40 for 8x12</td>
<td>Simple camera required. One-hour processing widely available. Standard-size prints are inexpensive. Larger prints and additional copies get expensive, as do special papers. You must print and pay for all shots are extra to see what you’ve got.</td>
<td></td>
</tr>
<tr>
<td>Kiosks (for digital photos, applies to Kodak Picture Kiosks)</td>
<td>$50–$125 for 4x6, $65–$100 for 8x12</td>
<td>Service is becoming widely available. You can print only the photos you want. Basic image editing tools and CD burning may be offered. Upload times may be long. Print sizes and paper choices are typically limited.</td>
<td></td>
</tr>
<tr>
<td>Online services (e.g. Shutterfly, Ofoto)</td>
<td>$0.49 for 4x6, $0.50 for 5x7, $0.59 for 8x12</td>
<td>Services are accessible from home. You can print only the photos you want. Basic image editing tools, online access for friends and family, and many printing options (such as cards and frames) are available. Upload times may be long. Services may not handle all formats. You must pay shipping. You need to print all photos. Paper choices may be limited.</td>
<td></td>
</tr>
<tr>
<td>Ink jet printing</td>
<td>$0.56 for 4x6, $0.95 per 8x10/11” page</td>
<td>You can print all photos (on the coast with a portable printer). You can select photos, sizes, and number of copies. Image editing is at your discretion. You can print all photos (on the coast with a portable printer). You can select photos, sizes, and number of copies. Image editing is at your discretion.</td>
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</table>

Prices vary by region and by individual manufacturer and store; prices listed are averages for 24-exposure rolls. † Includes development and paper, with average ink consumption (assumed to be twice that of nonphotographic images; 12.7 cents is about average for color graphics). **Includes average cost of glossy paper (about 71 cents per page), with average ink consumption (assumed to be twice that of nonphotographic images; 12.7 cents is about average for color graphics).