

# Blotch-Free Cherry

We tried every known approach and emerged with the surefire winners

BY MARK SCHOFIELD

## CLEAR FINISH

OIL OVER  
BARE WOOD

OIL OVER  
SHELLAC

## ADDING COLOR

DYE OVER  
BARE WOOD

DYE OVER  
SHELLAC

Cherry's popularity for fine furniture is no surprise: It is hard but not heavy; it cuts easily with power tools or by hand; the grain is restrained but interesting; and over time it takes on a beautiful, deep, red-brown color.

However, like a scorpion, there is a sting in the tail for the unwary. Many woodworkers apply an oil-based clear finish only to see the wood break out in random, dark, ugly blotches. Those who stain the wood, intending to instantly turn pallid, freshly cut cherry into the rich look of a 200-year-old antique, can see even worse results.

Not all cherry behaves like this. I'll show you how to spot the problem areas in advance. I'll also give you tips on how to pretreat your project before you apply a stain or a clear coat. When you start with a wood as nice as cherry, it's worth learning how to finish it.

Everyone agrees blotching is caused by uneven absorption of a liquid, whether it is a dye or a clear finish. There is less agreement on the causes. Some say it is resin deposits from

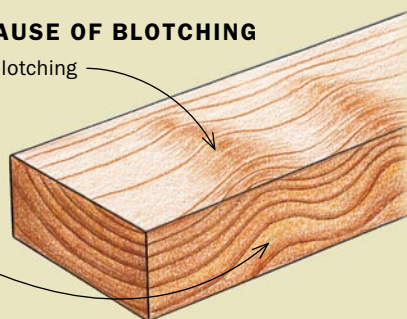
## Alcohol reveals trouble spots

It is very difficult to spot blotch-prone areas on bare boards, especially after sanding. The best way to find them is to wipe the wood with denatured alcohol. This will leave blotch-prone areas that are darker than their surroundings and take longer to dry.

### FIGURE IS ONE CAUSE OF BLOTCHING

Where curly grain rises to the surface, it exposes end grain. This absorbs more liquid, whether stain or clear finish, than the surrounding wood and causes blotching.

Blotching



**Danger ahead.** Wiping the wood with denatured alcohol reveals darker, blotch-prone areas.



## TESTING, TESTING...

There are numerous recipes and products that claim to prevent blotching. To discover which worked, which were worth the time, effort, and money, and which were best ignored, Schofield prepared three sample boards of very blotch-prone cherry. He tested the different methods under a clear finish, various oil-based pigment stains, and a water-based dye. He then retested the winning formulas on larger samples, to see how they performed in various grain situations.



kiln drying, while others point to alternating grain, similar to that found in curly wood.

No matter the cause, to locate these blotch-prone areas and to anticipate the degree of blotching, wipe all of the wood with a cloth soaked in denatured alcohol. Most of the wood should stay a uniform shade, but certain parts may soak up the alcohol, turning the wood much darker. These areas, which also will take longer to dry, are the ones that will blotch when a dye or oil-based finish is applied.

Now that you know trouble lies ahead, forewarned is forearmed. You can use a variety of different products and techniques, depending on the severity of the blotching, to pretreat the wood before applying a dye, stain, or clear finish. However, even if there are only

one or two problem areas, the whole workpiece will need to be treated in order to achieve an even appearance when finished.

### Many methods of blotch control; not all work

The objective of all blotch prevention is to even out the absorption capacity of the wood, and there are at least a dozen products and techniques that claim to achieve this. The majority aim to restrict the wood's ability to absorb a dye or clear finish by burnishing or semi-sealing the surface. The second method is to saturate the wood with another liquid prior to applying the finish.

To discover which methods worked best and how much time and effort they took, I initially made three sample boards of blotchy cherry. I sanded half of each board to P150-grit, while the other half was treated with six

### Online Extra

To watch the author apply a high-gloss finish to curly cherry, go to [FineWoodworking.com/extras](http://FineWoodworking.com/extras).



ENTIRE BOARD COATED  
WITH DANISH OIL

## 3 ways to reduce blotching from clear finishes

Oil-based finishes are the most likely of the clear finishes to cause blotching on cherry. These include wiping varnish, oil/varnish mixes, Danish oil, and polyurethane, and the blotching can occur whether the finish is wiped, brushed, or sprayed on. The sample board shows how Watco Danish Oil is affected by various treatments.

### 1. FOR MINIMAL BLOTCHING, KEEP ON SANDING



If the alcohol test reveals that only minimal blotching is likely, the simplest method of blotch control is to sand to a higher final grit. Instead of stopping at P150- or P180-grit sandpaper, carry on through the grades until you reach P400 grit. This smooths and burnishes the wood, making it less able to absorb a liquid. It will still allow the deep, lustrous look associated with oil-based finishes, but it does involve more time sanding—a task that few of us find appealing.

### 2. A WATER-BASED CONDITIONER SEALS IN MODERATE BLOTCHING



Minwax's Water-Based Pre-Stain wood conditioner feels and looks like a greatly thinned water-based clear finish, and dries to a thin film on the surface. Brush on a single coat, let it dry thoroughly, and then sand it with P320-grit paper. Remove the dust and apply the oil-based clear coat of your choice. This method works well on wood with moderate blotching, yet the results still resemble a penetrating finish. Don't be tempted to thin a water-based finish by 50% and use that as a blotch controller; it won't work.

### 3. NOTHING BEATS SHELLAC ON SEVERELY BLOTCHY WOOD



If the alcohol test reveals severe blotching is likely, stop sanding at P180-grit and apply a single coat of a film finish that has been heavily thinned. Known as a washcoat, the most common choice is a 1-lb. cut of dewaxed shellac. The blotch-prone areas will soak up the washcoat more than the rest of the wood. After the washcoat dries, sand it lightly with P320-grit sandpaper. You'll remove much of the sealer but leave the blotch-prone areas lined with it, allowing the surface to absorb clear finish more evenly. This will almost eliminate blotching, but the reduced oil penetration will also leave more of a film-finish look.

THIS SIDE  
SANDED TO  
150 GRIT



methods of blotch control. One board was finished with Danish oil, another wiped with a water-based dye, and the last was wiped with an oil-based pigment stain. After discussing the results with the other editors, I did further testing using larger areas, to explore various grain situations and types of stains.

### Some clear finishes cause blotching

We've all sighed with content as that first coat of Danish oil reveals the true color and shimmering depth of cherry. This is what woodworking's all about, we think, and happily press on. The next morning is when the shock hits: What is that dark area on that drawer front? Why doesn't it disappear when you look at it from a different angle? It's not poor sanding, because the surface feels uniformly smooth. Welcome to the world of blotchy cherry.

It's not just oil/varnish blends like Danish oil that cause blotching, but also wiping varnishes such as Waterlox Original, and oil-based alkyd varnishes or polyurethanes. Any blotching will be less noticeable than when dyeing or staining, but the darker



**How blotch prevention works.** The near side of the board was washcoated with shellac while the far side was left bare. Then the surface was flooded with Danish oil. After 30 minutes (above), the bare wood had absorbed almost all the finish, while the washcoated side had absorbed far less.

## Two blotch-control methods to avoid

### GLUE SIZE: EFFECTIVE BUT TIME-CONSUMING



You've probably noticed how remnants of glue squeeze-out leave annoying pale areas after you've applied a dye or an oil-based clear finish. You can exploit this by diluting some yellow glue with about eight parts of water to create a glue size. Brush on a single coat, let it dry, and then sand the surface with P320-grit paper. Like a washcoat of shellac, this seals the blotch-prone areas so they will end up the same color as the rest of the board. However, the water-based glue size raises the grain more than shellac, takes longer to sand smooth, and can't be used under a water-based dye or water-based clear coat. So stick with shellac.

### SOLVENT-BASED CONDITIONER LEFT SPLOTCHES



Just as an inoculation gives your body a small amount of the disease, in theory you can treat blotching by first applying a much-diluted coat of a penetrating finish. The directions call for flooding the surface and then wiping off the surplus. Then you apply the dye or clear coat. I found pre-saturation less effective than sealing the wood, especially on heavily blotchy cherry. I applied a coat of Minwax's Pre-Stain wood conditioner (not to be confused with the water-based product of the same name, which actually seals the surface), but it left orange splotches on the wood that showed through the clear finish.



THIS SIDE HAS  
COLOR OVER  
BARE WOOD

THIS SIDE HAS  
COLOR OVER  
SHELLAC

# 3 ways to add color to cherry without blotching

To narrow down the options, Schofield first tested a number of dyes and stains on separate sample boards, each treated with various stain controllers. Then he made the board at left to illustrate how the best stain controller—a washcoat of shellac—can help with three good methods of coloring cherry.

## TINTED OIL ADDS MINIMAL COLOR WITHOUT FUSS



**Penetrating pigment.**  
*Tinted oil was liberally applied (above) and then wiped off (right). The wash-coated side didn't blotch; the bare-wood side did.*



Watco's cherry Danish oil is a pigmented stain, and as expected caused severe blotching on bare cherry. However, on blotch-prone cherry washcoated with shellac, the result was a light but even application of color. If you want only a slight change in your cherry's tone (remember, cherry will darken as it ages, even under a dye) and prefer the look of a penetrating finish, this is the way to go.

## GEL STAINS ADD EXTRA COLOR WITH EACH COAT



While Bartley's Pennsylvania cherry left bare wood blotchy, it left wood washcoated with shellac evenly colored and blotch-free, but with the grain slightly highlighted. Each coat of gel stain adds incremental color with minimal fuss, so if you are looking for an easy way to harmonize different-colored boards, try a gel stain. However, because gel stains are mostly pigment-based, each extra coat after the second or third will gradually make the finish more opaque, hiding the wood's figure.

## WATER-BASED DYES OFFER CLARITY AND COLOR CHOICE



With dyes, the particles of color are far smaller than in pigment stains, so they remain suspended in the liquid (there's no need to stir the container) and they don't collect in the wood pores, highlighting them. However, they will still create darker areas on blotch-prone wood, so pretreating is advisable. A washcoat of shellac will reduce the overall impact of the dye when compared to bare wood, but you can get around this by mixing a more concentrated batch.



patches still will be blemishes. The three most effective ways to control blotching are described on p. 54, while two techniques to avoid are on p. 55.

### Add color to cherry, but not bare wood

While many woodworkers recoil from the concept of coloring wood, with cherry in particular it's tempting to fast-forward the aging process and achieve an antique look in hours. Alternatively, you may be trying to blend cherry boards with different tones or to match an existing piece of furniture.

As well as the sample boards tested with water-based dye and oil-based pigment stain, I also tried a gel stain and colored Danish oil. Without exception, all of the coloring methods looked better when applied to cherry that had been pretreated with a washcoat of shellac. On bare wood, all of the dyes and pigment stains caused blotching to a greater or lesser extent.

On the facing page, I give three ways to color cherry based on the amount of color you want to add, the ease of application, and the number of colors available. Below I give a couple of coloring options to avoid.

The bottom line? Never apply any pigment stain or dye to blotch-prone cherry that has not been treated with a washcoat. Whatever dye or clear finish you use, try it on a sample board from scraps of wood left over from your project. Discover the hidden surprises there and not on your cherry workpiece. □

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**Shellac prevents blotching.** A thin coat of shellac, known as a washcoat, is the most effective form of blotch control. However, it is important that you use dewaxed shellac, as waxy shellac can prevent some topcoats from adhering. Among the brands made by Zinsser, make sure you choose SealCoat, which is dewaxed, and dilute it 50% with denatured alcohol.

### Avoid oil-based pigment stains for cherry

Walk into any hardware store or home center and the first choice for coloring wood will be rows of wood stains. The choice of colors is extensive and the application method (apply, leave on for five minutes, and then wipe off with a clean cloth) seems simplicity itself. Just say no. On this sample board, I applied a single coat of Minwax Wood Finish, an oil-based pigment stain. On the right-hand side of the board that was sanded to P150-grit, it brought out the worst in this blotchy cherry. Various methods of blotch control on the left-hand side had mixed results. From top to bottom: An oil-based conditioner and a water-based one reduce but don't eliminate blotching; a coat of glue size or a washcoat of shellac eliminates blotching and most of the color but still leaves pigment in the grain; sanding to P400-grit and P220-grit makes little difference.

