Take Control of Your Camera

by Mark Turner

Your DSLR or compact digital camera has myriad settings you may be afraid to use because you don't understand them. Do you feel confident using your camera in P, Av, Tv, and M modes – or are you stuck in a 'safe' rut? Learn to take control by understanding how aperture, shutter speed, and ISO affect exposure. Take advantage of aperture-priority auto for creative choices. Discover when and why you'd use a polarizing or neutral density filter. This is a nuts and bolts technical session that will help you become confident adjusting settings to get the creative effects you want.

What's Wrong With Full Auto?

Many cameras, including Canon professional bodies (pictured above), have a fully automatic mode that sets everything for you: ISO, white balance, aperture, shutter speed, and autofocus mode. The camera's computer is making all the choices for you except for where to hold the camera and when to release the shutter. On the plus side, you'll get a reasonably well-exposed photo that's probably in focus while doing little more than pointing and shooting. But you probably didn't buy a bigger and more expensive camera just so you'd have a heavier "point and shoot." When you leave your camera in full auto, often marked in green on the control dial, you're giving up a lot of creative choices.

Should You Use Manual Mode?

No. The opposite of full auto is full manual. With a few exceptions, you don't need to use manual exposure mode to exercise creative control. In manual mode you're setting both shutter speed and aperture while paying attention to the camera's metering display to get the exposure right. Modern cameras have very good exposure meters and auto exposure works well most of the time. For garden photography, ***aperture-priority auto exposure*** is generally the best choice.

Why Aperture-priority Auto?

The aperture controls both exposure (in conjunction with ISO and shutter speed) and depth of field. One of the most important creative choices you'll make is depth of field, which refers to how much of the photo, from flowers near the camera to the distant horizon, is in focus.

Small apertures (big numbers) give greater depth of field, with more of the photo appearing sharp. Large apertures (small numbers) have shallow depth of field, with only part of the subject in focus.

Making your primary subject sharp while the background is out of focus is a classic and very effective technique to help your subject stand out. In garden photography, it's particularly useful for plant portraits and blossom details.

What About Shutter-priority Auto?

Changing the shutter speed affects how moving subjects are captured. Most of the time you'll want a high enough shutter speed to stop motion and avoid the blur that comes from not being able to hold your camera still at slow shutter speeds.

A good rule of thumb is to use a shutter speed at least as fast as 1/focal length of the lens (for full-frame DSLRs) to avoid blur from camera shake when you're hand holding your camera. For example, if you're photographing with a 100mm lens you need a shutter speed of 1/100 sec. or shorter. Image stabilization will give you another stop (each one-stop exposure change halves or doubles the amount of light reaching the sensor) or two, so you might get a steady shot at 1/25 sec. at 100mm.

TRY Aperture-priority Auto

Set your camera to aperture-priority auto exposure (A or Av on the mode dial), then set up a shot with your camera on a tripod. Shoot a series of exposures, changing the aperture by one stop with each shot. Start at your widest aperture (likely f/2.8 or f/4) and end at the smallest (likely f/22). Look at each frame to see how depth of field changes. Repeat with different subjects and lens focal lengths. With some practice you'll be able to anticipate which aperture will give you the look you're after. If your camera has a depth of field preview button, use it to stop the lens down and see the effect in the viewfinder as you change apertures before you release the shutter.

When you change the f/stop in aperture-priority mode your camera will automatically change the shutter speed to maintain a constant exposure. Make sure the camera is setting a high-enough shutter speed that you'll be able to stop motion, either of the subject or the camera.

In garden photography, most of the time you'll want a shutter speed fast enough to stop plants blowing in the breeze. How fast? Depends on how fast the wind is blowing, the focal length of your lens (longer lenses need faster shutter speeds), and whether the motion is toward the camera or across the field of view.

TRY Shutter-priority Auto

Set your camera to shutter-priority auto exposure (Tv on Canon, S on most other brands), put your camera on a tripod, then set up a shot with a moving subject. Shoot a series of exposures, changing the shutter speed by one stop with each shot. Start at a slow shutter speed (1/4 sec.) and go from there. Look at each frame to see how motion is rendered. Repeat with different subjects and lens focal lengths. With some practice you'll be able to anticipate which aperture will give you the look you're after.

In shutter-priority auto, the camera changes the aperture to maintain constant exposure as you change shutter speeds. Use shutter-priority auto when freezing action is more important than controlling depth of field, i.e. when photographing action sports.

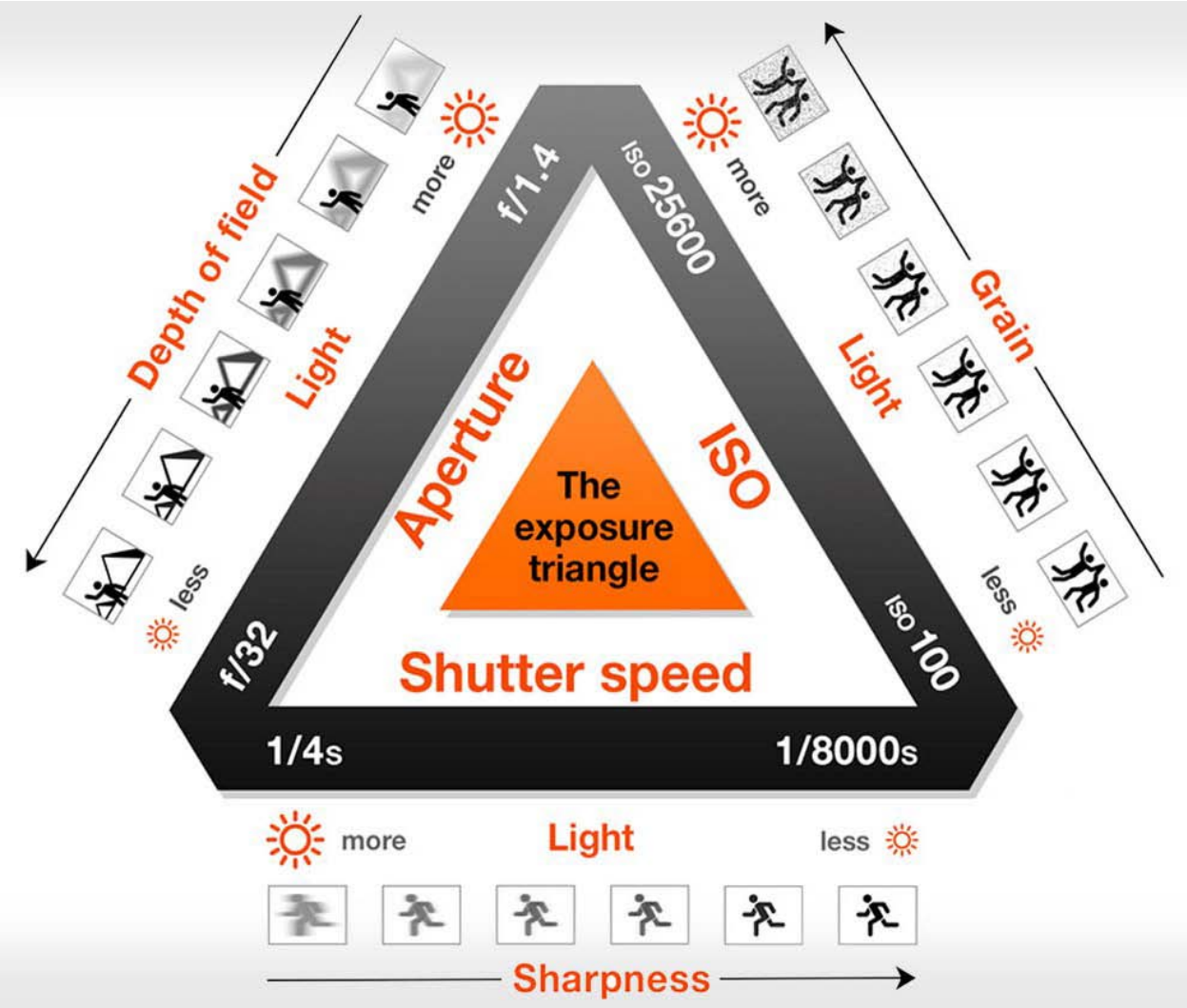
You can achieve the same result in shutter-priority as aperture-priority, but it makes more sense to change aperture and let the camera set the shutter speed when controlling depth of field is most important.

You can also deliberately choose a slow shutter speed to capture a blur of motion. Every frame will be a little different. Slow shutter speeds are very useful for getting a silky look to flowing water, whether in a garden fountain or out in nature. A shutter speed of ¼ sec. is a good starting point for silky water, but longer exposures of ½ sec. or a full second can also give a nice effect. Conversely, to freeze moving water, use a shutter speed of 1/500 or shorter. Since it can be hard to see the effect on your camera's display, bracket exposures for different shutter speeds and choose your favorite version later.

The Exposure Triangle

Three settings interact to control exposure in digital cameras.

- **Aperture** controls the size of the hole letting light pass through the lens)
- **Shutter speed** controls how long the hole is open
- **ISO** controls how sensitive the sensor is to light.



Graphic from PetaPixel:
https://petapixel.com/2017/03/25/exposure-triangle-making-sense-aperture-shutter-speed-iso/

Most of the time you'll set the ISO first, based on how bright the scene is. This is like choosing a "slow" or "fast" film. As a rough rule of thumb, choose the lowest ISO that will let you use the aperture you want for depth of field and a shutter speed that stops motion blur. The trade-off with higher ISO setting is more noise, particularly in the shadow areas. However, it's better to have a sharp photo with some noise (which software can sometimes minimize) than a blurred low-noise photo.

When Should You Change ISO?

Go to a higher ISO when the f/stop you chose for depth of field gives a shutter speed too slow to stop any motion.

Choose a lower ISO when there's plenty of light for a motion-stopping shutter speed at your chosen aperture. Also choose a lower ISO when you want to use a slower shutter speed to blur motion and you can't (or don't want to) stop down any further, like blurring water on a bright day.

Your Brain Instead of Your Camera's Computer

The trade-off between using aperture-priority auto vs. your camera's full auto mode is that you have to think about what you're doing and what result you want. If that seems like too much work and you're happy with the results you've been getting, then stick with full auto. But if you want to step up your photo game, then get out of full auto and take charge yourself.

Control Contrast With Filters

Although with today's digital photography software (think Photoshop or Lightroom) you can radically change, improve (or make worse) your photos, there are two filters you can place in front of your lens while photographing that will help you control contrasty light on sunny days: polarizing filter and graduated neutral-density filter.

Polarizing Filter

Most people think of using a polarizing filter to darken a blue sky. It does that, but in garden photography you're more likely to want a polarizer to reduce glare off foliage. Reducing bright reflections off leaves reduces contrast and helps you hold more detail in the shadows.

In use, mount a polarizing filter on the front of your lens and then rotate it while looking through the viewfinder. You'll be able to see the effect easily. I prefer to leave a little bit of reflection so the photo looks natural and not too flat. You'll find that color saturation looks better, too, when you've reduced the reflections.

Polarizing Filter

Graduated Neutral-density Filter

Two-stop graduated neutral-density filter

Use a graduated neutral-density filter (ND Grad) when you want to darken one edge of a photo, as when you're including a bright sky in a landscape image. An ND Grad is clear on one edge, has a soft transition in the middle, and is dark on the other edge. They're usually large, square filters so they don't screw onto your lens. I find that holding an ND Grad against the front of my lens works well and lets me slide it up and down until the transition between light and dark is where I want it. Usually that's on the horizon with a bright sky that I want to darken.

ND Grads come in several strengths. The one I use most is a 2-stop ND Grad, but I occasionally will use a 3-stop ND Grad when there's a larger brightness difference between my primary subject and the sky.

Conclusion

Abandoning your camera's full-auto mode and choosing your own combination of aperture and shutter speed puts you in control of depth of field (by adjusting the aperture) or how motion is captured (by adjusting shutter speed). These are critical creative choices that you don't want to leave to your camera's internal computer. The extra thinking required is well worth the effort.

Carrying a polarizing filter and a graduated neutral-density filter won't add much weight to your camera bag, and you probably won't use them often. But when you need one of these you'll be glad you have it to help control contrast and get better exposed images.

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