

weeds, insects or trash should be an indication of hay to avoid. The hay should smell sweet and fresh. Hay that has molds in it can be detected by smelling and should not be fed to the horse. Likewise shake a flake of hay to evaluate dustiness. Feeding hay that is excessively dusty may cause respiratory problems and reduce performance of the horses.

The average horse should consume at least one pound of forage per one hundred pounds of body weight daily. It is important to keep at least a minimum amount of roughage in the horse's diet to maintain digestive tract normal fill. This will ultimately reduce digestive upsets and boredom. It is not at all uncommon for the average horse to consume up to 2.5 percent of their body weight daily of an all roughage diet. This level of intake will depend on if the owner feeds any grain or supplements and what the management practices are. Non-working horses will meet most of their

nutrient needs consuming hay alone and should have plenty of clean fresh water and salt available.

Ultimately high quality hay is green, feels soft and flexible and has a fresh smell to it. High-quality hay is usually made from more immature plants that have a higher leave to stem ratio. The use of good quality hay regardless of specie will meet the nutrient needs of most of our pleasure horses. The table below shows that there are indeed differences in nutrient composition of the three hays. Therefore, if all are available at a similar price and quality, the alfalfa hay is a better buy on a cost/nutrient basis. If your horse seems to prefer a source of hay over another, listen to your horse. Your horse may be trying to tell you something about the quality of the hay and what he prefers.

Nutrient Composition of Typical Hays Grown in Arizona

Hay Type	Crude Protein (%)	Digestible Energy (Mcal/lb)	Calcium (%)	Phosphorus (%)
Early-bloom Alfalfa	17 - 20	1.1	1.0 - 1.8	0.1 - 0.3
Full-bloom Alfalfa	15 - 18	.95	1.0 - 1.8	0.1 - 0.3
Bermuda grass	7 - 12	.90	0.4	0.19 - 0.3
Oat Hay	6 - 10	.87	0.5 - 0.35	0.1 - 0.3



Photo 1

PHOTOGRAPHY BASICS

Plants & Landscapes

Willie Sommers

Range Resource Area Manager, Arizona State Land Department

Plants provide good material for the photographer, whether they are growing in your backyard or out in the wild. One reason is that they are stationary and can be photographed at various angles or different times of day. In Arizona, there are some incredible plants and landscapes offering countless photographic opportunities. All that is needed to get the best out of photography are a few of the basics and some creativity. Some of the non-technical basics of photography, as known to the author, are composition, lighting and subject matter.

COMPOSITION

In landscape photography it is important to take care with composition and pay attention to several concepts; a common one is the rule of thirds. As you look through your camera's viewfinder, imagine lines dividing your image into nine equal-shaped blocks. Consider framing the main subjects around one of the intersection points rather than the center of the image. With landscapes, this rule can be applied to the placement of the horizon line. If your main subject is land, the horizon line will be two-thirds up from the bottom. A second rule is the use of diagonals—strong lines (e.g., a trail or fence) that fade away into a corner of the picture may improve composition.

Additional considerations with composition include framing the subject, visual cropping, and choosing a viewpoint. While most photographs have a foreground and a background, the foreground can be used to frame and add interest to the scene (Photo 1). In many cases, plants in the foreground add to the composition and can be used to hide unsightly or man-made objects. Visual cropping, on the other hand, comes from observing the four corners of the viewfinder and making adjustments. The idea is to produce a full image of the subject by either moving or zooming closer before pressing the shutter



Willie Sommers

Photo 2

release button. Choosing a viewpoint can also be helpful in achieving a desirable image that is framed and cropped to satisfaction. It is worth taking time to explore a variety of viewpoints, especially when the picture could be improved by moving a short distance away or crouching down.

LIGHTING

Outdoor lighting in Arizona can be summed up in two words—abundant and bright. Factors to consider when photographing landscapes and plants are time of day and weather. In the early morning and evening the shadows cast by the sun will be long and dramatic; whereas, at midday the shadows cast by the sun will be shorter. Under clear skies, it is advisable to refrain from taking landscape photos between roughly eleven in the morning and one o'clock in the afternoon. From personal experience, it is well worth the effort to get up early (or stay out late in the day) to capture the best quality of light. The weather can also have a significant impact on the quality and mood of an outdoor picture. Overcast skies can be highly desirable to supply even lighting and depth of field to expansive landscapes (e.g., desert grasslands). Close-up pictures of plants or flowers can turn out much better in even or diffused sunlight (**Photo 2**) and dark clouds provide great effects as well. A tripod is an asset in many low light conditions where slow shutter speeds are necessary. If a tripod is not available, try setting the camera on a fixed object for a similar result.

SUBJECT MATTER

While all plants look their best at a certain time of year, the months of March and April bring wildflower displays following wet winters. In addition to wildflowers, there are several types of cacti (hedgehog, cholla and fishhook) that produce showy flowers that are great for close-ups. Details of trees and other plants are excellent subjects for close-up shots, but may require the use of a macro lens or macro setting on a digital camera. When photographing landscapes, effort should be made to create perspective, or a feeling of depth. Using a foreground will get this effect, as would tree limbs or foliage filling the top or corner of the picture. Lastly, moving the camera from a horizontal to a vertical position may yield a notable difference in the composition of a given subject.

Even with all of the technological advances in film and digital cameras, the most important factor behind a great picture is the photographer. Taking a great picture requires patience and attention to detail, along with a lot of experience. Photography is an excellent hobby for people of all ages, and a great way to show off and share nature with others. Below are some helpful tips to apply outdoors.

PHOTOGRAPHY POINTERS

- Look for the unusual
- Search for a unique viewpoint
- Add foreground to improve composition
- Be aware that bright sunlight can create harsh shadows
- Low light (time of day or weather) can be used to your advantage