

months. We are getting an 80% success rate. We have had mixed results with pot-grown containers. Only the graft union is waxed with conifers and the grafts are placed on the floor at 7° (45°F). Shading is important for success during the 6-week callusing period.

Tuesday Afternoon, December 11, 1979

The afternoon session was convened at 1:30 p.m. with Dr. Roy A. Mecklenburg serving as Moderator.

APPLIED PLANT PHOTOGRAPHY

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Slides are frequently used as visual aids for presentations on many subjects. Certain techniques can be applied to plant photography which will greatly improve the quality of your presentation. Rather than listing specific formulas for good picture-taking, general techniques for improved photography with a 35 mm camera will be discussed. Purchased 5 years ago, my camera cost about \$200 with a few accessories. Comparatively, it is an inexpensive single-lens reflex camera.

Therefore get to know your camera, its assets and limitations. The proper way to hold the camera is with your left hand under the lens, with your thumb and index finger manipulating the focusing ring and other settings. Use your right hand to hold the camera body and to depress the shutter release. Keep your elbows close to your body to minimize camera movement. For low light conditions requiring a long exposure, use a tripod and cable release. Other alternatives are to lean against a tree or building, or rest the camera on a solid object. Use the following formula to determine the slowest shutter speed that you can use for a given lens. If the lens' focal length is 50 mm, use the closest shutter speed to that number, in this case $\frac{1}{60}$ of a second.

Different types of film produce different results. For comparison, I have chosen Ektachrome and Kodachrome. The packaging colors will show the predominant color of the film. Ektachrome has strong blues and cool colors, while Kodachrome shows up reds and warm tones. Other films have similar color

dominance; Fujichrome is strong in greens and Agfachrome in oranges.

The ASA or film speed is a rating of the film's sensitivity to light. Low ASA members, such as 25 and 64, are designed for bright light conditions, yielding brighter colors and a finer grain. Higher ASA numbers like 200, 400, or 500 are for lower light conditions, and the colors are muted and more grainy.

Proper metering is the most important key to good quality photography. The meter in your camera measures your subject for a correct exposure of 18% reflected light, which is a neutral gray. This "correct" figure is derived from the following formula: white reflects 90% of the light, and black reflects 3.5% of light. The square root of the product of 90 and 3.5 equals 18. For accurate metering use an 18% gray card. Place the card on your subject, meter it, and shoot, using that setting.

Special situations require compensation because the meter reading will give an unsatisfactory result. When your subject is against a bright background, a metered exposure of the whole scene will result in a dark subject. Instead, meter on your subject closely, back away and shoot. Another effective way to deal with a bright background is to fill the dark areas with light from your flash unit. When photographing whites, meter readings will be inaccurate. Your meter will tell you to photograph those whites as grays. This would include white backgrounds, close-ups of white flowers, and snow. To correct the exposure, meter from a gray card or open your camera up 2 or 3 f-stops. The opposite is true for pictures of dark or black subjects, including bark or black backgrounds. Under-expose your picture by 1 or 2 stops. There are some new cameras which are advertised as fully automatic. The meter selects the correct exposure, and you take the picture. However, the meter cannot be overridden, and you cannot compensate for special situations.

When you want the best possible exposure for important pictures, bracket your exposures. Take a picture at the correct setting, then over-expose by one stop, then under-expose by one stop. This will give you a choice of which you think is best.

Color saturation will give you richer, more brilliant slides. By setting the ASA on your camera $\frac{1}{3}$ of a stop under the film's rating, you will slightly underexpose your color slides. For example, set 64 ASA film at 80 on the camera. This is most effective in bright light conditions with strong color.

The way in which a slide is focused is important to the viewer. The eye is drawn to the sharpest portion of the image. If the subject is blurred, and another part is in sharp focus, the viewer's eye will be distracted. A bright spot in the slide will

also detract from the center of interest.

Depth of field is the in-focus part of the photograph. Many cameras have a depth of field preview button, which allows you to see exactly what is in focus. The lens has a depth-of-field scale which shows how many feet or meters are in focus. A wide lens opening will show shallow depth of field, and a small opening will have a large area in focus. One third of the focused area will be in front of your focal point and $\frac{2}{3}$ behind. When taking pictures of a nursery row, choose a small lens opening to keep the whole row in sharp focus. If you are shooting an individual plant, it shows up best against a blurred background, so choose a wide aperture. The reverse may be true in specific situations. A fuzzy dandelion plume may be enhanced by a sharply focused background.

Many filters are available for special effects and color correction. A fluorescent filter will correct the greenish-blue tinge resulting from using daylight film under fluorescent light. To correct the yellowishness of incandescent light when using daylight film, use a flash. Close-up filters or extension tubes are available for close-up pictures. The filters are quick and easy to use, compact and light. Extension tubes taken longer to set up, but give a sharper picture with more depth of field. The tubes also provide more magnification than filters.

An appropriate background is vital to a good photograph. The background should never distract from the subject. A building, cars, or people might distract the viewer from what you want to say about your slide. If you can, move to a different angle to shoot, or use a wide lens opening to blur out the background. When doing close-up work, put your subject on a piece of glass. Raise it 8" to 12" off the ground, and shoot with a wide aperture. This will blur the background and give the subject a floating appearance.

Don't put horizon lines or other dominant lines in the center of the photography. Move them to the upper or lower third of the viewfinder. Fill the frame with your subject. The less background, the better, in most cases. You pay for your film and processing, so make the most of it, and use all the film for what you want most.