

Hints for Plant Identification Exam Coaches:

This is written from Barry Irving's perspective.

How many mounts are needed to study and test from? There is no complete answer for all the species, as some have more variation than others. Of course, more specimens usually equals more variation, but multiple specimens can show the same thing. A minimum of 5 specimens per species is a good start. But, you also need to always be building, and that includes collecting from your own locale, the locales of the annual meeting (you might get samples in the flower boxes outside the hotels, or a vacant lot near the convention center), as well as anywhere else you might travel to. Always be ready to collect study samples; you might never get back to that location.

Coaches are only really obligated to send out one sample per species assigned per year, so it takes time to build through the exchange process. Some may send you more if you specifically request them to do so and you might do the same for someone else. As an example I would not send multiple samples for every species on my list when I coached, as sometimes I did not have multiple samples for every species, but if I had the material, I would send it out if requested, for reasonable requests. Study material for plant identification needs to be built over time.

When I retired from the University of Alberta the teaching herbarium had 4 collections. The 4 collections were: 1. 2 cabinets with a folder for each of the 200 species, with 5-10 samples of each species. The cabinets were in a secure room, but the students had access to it at all times. 2. A test herbarium that for the last 15 years before I retired consisted of dedicated tests for each week of study. I taught the grasses first, starting with Eragrosteae (hardest to learn for northern students, hardest names, smallest spikelets, most variation, etc.) and then marching through the master list at a rate of 16-20 species per week, and finishing with Rosaceae and Fabaceae as they were the easiest to learn. I finished all 200 before the holiday break, and then reviewed after the holidays until the contest. That meant for cumulative testing, I needed more specimens of Eragrosteae than I did Rosaceae. 3. I also had a random set of study samples, as when students study from folders, they start to learn the mounts before they open the folder. They will learn a random set as well, but at least the order is random. 4. I kept a spare collection, as study mounts wear out and need to be replaced. Whenever I collected I always collected enough samples for all those collections above, and some for trading (you may have to trade for difficult samples, as the expectation is only for coaches to collect and distribute their assigned species, but not necessarily the difficult specimens), and finally some to submit to the contest herbarium. Collecting 20 samples is as easy as collecting one sample. It is easy to throw out excess samples if you have too many, and often difficult to get back to some locations if you leave collecting for your next trip.

When you get samples from other schools you can often split one sample into many (and lots of times you can find stuff hidden in big samples, *Bromus tectorum* seedlings as an example can be found in a lot of mounts coming from anywhere in the Great Basin, look for them and use them). If you use a coaching technique called "cut outs" where you cut a small square in a piece of paper and hide everything on a mount except what's shown in the cut out, you can create multiple teaching and testing samples, from each and every mount, and introduce variation and surprise from very few samples. *Eragrostis trichodes* will often have over mature spikelets at the top of the panicle and immature ones at the base. Cut outs lets you teach and test both from the same sample.

Finally, get very tough on your students (and yourself). I learned early that starting easy and building to difficult testing does not work for competitions. You need to set the standard of study high from the start, and then only get tougher as time goes on. You may need to give students a break once in awhile through either an easier test or an easier set of plants to learn so they can catch up and also build their confidence. You need to be tough, but you can't be so tough you shatter their confidence, it's a delicate balance. The only time I let up on toughness was the final few tests before the competition because I believe the mental state of a student needs to be bolstered at that time. If they think they are smarter and improving, they will be smarter and improving. Every group of students is different, so toughness on the part of the coach needs to adjust. Should you be too tough, you can be faced with students who outright

quit, or do not perform because they do not think they can. When you damage their confidence, you need to be ready to build it again, but avoid damaging their confidence just before the competition as it takes time to recover lost confidence. Students will adjust their study to the level of difficulty they are faced with, and if they are faced with easy and whole plant (also test part samples, individual spikelets, buds, leaves, etc.) tests they will not learn to their capability. If you teach them easy, they will learn easy, and they will not be able to perform in competition, even on easy competition samples. The tougher you are (as long as specimens can be identified) the better they will become in the long run. Students may not like tough tests at the start but they will thank you in the long run.