



# Foundation Plant Services

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## **DNA-BASED VARIETAL IDENTIFICATION AND PROFILING SERVICES FOR STRAWBERRY AND FRUIT & NUT TREE CROPS**

Foundation Plant Services offers DNA-based varietal identification and profiling on a fee-for-service basis for almond, apricot, cherry, peach, strawberry and walnut. The services make "DNA Fingerprinting" technology available to nursery managers, growers, breeders and other industry representatives. Varieties are identified by comparing the DNA profile of a sample to Foundation Plant Services' Plant DNA Identification Reference Database. The database contains DNA profiles of most important varieties grown in California including rootstocks. A second service provides the client with the unique DNA profile of the variety. Both domestic clients and clients from outside the U.S. may submit samples for analysis.

Results are typically ready in three to four weeks. An invoice will be sent with the results when testing is complete. Payment is due upon receipt of invoice.

### **Service 1: DNA Identification of Varieties**

This service determines or confirms the varietal identity of a particular plant. A sample from the plant in question is typed with microsatellite DNA markers. The resulting DNA profile (the DNA Fingerprint) is compared with Foundation Plant Services' Database of Reference Profiles. Leaves are the standard sample, but other tissues including fruit, roots and dormant cuttings can also be fingerprinted. Sample collection materials and instructions are provided as part of the service.

<b>Price:</b>	<b>1-5 samples</b>	<b>\$345 per sample</b>
	<b>6 or more samples</b>	<b>\$265 per sample</b>

(There is a \$50 per sample surcharge for all sample types other than leaves.)

### **Service 2: DNA Profiling of Varieties (not available for strawberry)**

This service provides a unique DNA profile (DNA Fingerprint) of a variety. Two separate samples of the variety are typed at a number of microsatellite DNA markers sufficient to ensure to an extremely high degree of confidence that the profile is unique to the variety. The resulting profile is provided to the client.

<b>Price:</b>	<b>DNA Profiling</b>	<b>\$1000 per sample</b>
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(Only leaf samples are accepted for the DNA Profiling Service.)

## HOW TO SUBMIT SAMPLES FOR TESTING

Materials for submitting standard samples (dried leaves) are provided as part of the service. All other sample types require special arrangements. The DNA testing agreement form and detailed collection instructions are available on our web site.

- 1) Contact Jerry Dangl at the FPS Plant Identification Lab by phone or email. You will be asked for your contact information, which service you need, how many samples you'll be submitting and for some background regarding your testing issue.
- 2) Collect your samples according to the instructions, which will be provided with the sample collecting kits and are available on our web site.
- 3) Complete the Testing Agreement Form, including Attachment A. The form is on our web site, but we can send a hard copy with the sample collection kits, if you wish. You can return the form with your samples or by FAX.

**Web Site:** <http://fpms.ucdavis.edu/CustomServices.html>.

**Phone:** (530) 752-7540

**FAX:** (530) 752-2132

**E-mail:** [gsdangl@ucdavis.edu](mailto:gsdangl@ucdavis.edu).

**Mail samples to:**

**(via US Postal Service)**  
Foundation Plant Services  
Attn: Jerry Dangl  
University of California  
One Shields Ave.  
Davis, CA 95616

**(via UPS, FedEx or other courier)**  
Foundation Plant Services  
Attn: Jerry Dangl  
University of California  
SW Corner Hopkins & Straloch Rds.  
Davis, CA 95616

## DISCLAIMER

Although DNA profiling is a very powerful and sensitive identification tool, it has limitations:

- 1) The university's reference database is extensive; however, it does not contain all known varieties. If there is no reference profile for the variety of the submitted sample, then the university cannot identify the sample. User will pay for work performed by the university regardless of whether or not sample can be identified.
- 2) The technology used for the university's standard service cannot distinguish variants within a variety. Profiles for such variants, referred to in the industry as "somatic mutants", "clones" or "bud-sports", will be identical, though the difference in the appearance of the plant and/or the fruit may be significant.
- 3) Numerical designations used to define microsatellite allele sizes may differ slightly between laboratories due to differences in methodology. Adjustments for inter-laboratory differences can be made by referencing common varieties that have the same alleles as the samples being analyzed.
- 4) Ambiguous genotypes at individual markers are occasionally observed. These ambiguities, a normal consequence of the methodology, can be resolved if the parents of the variety are also analyzed. Such ambiguities do not normally pose a problem in creating a profile unique to the tested variety, as the results for the other markers are usually unambiguous, and these alone can be expected to characterize the variety uniquely.