

# Technology & Product Reports

## PediTrack—An Adaptable Pedigree Tracking Program

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**SUMMARY.** In a database system that allows for quick and accurate querying, *PediTrack* generates pedigrees in an easily understandable format. Other pedigree programs are available commercially, but are often expensive, specific to certain organisms, or unadaptable for specific programmatic use. *PediTrack* allows a personal computer (PC) user with Microsoft Access version 2000 or higher to use the simple program without charge. This software is widely available and easily adaptable to a variety of breeding program functions. *PediTrack* does not perform any calculations, so the initial program size is small (<2 megabytes). The program consists solely of the basic framework for housing pedigree information and reporting pedigrees based on those records.

Lineage tracking remains an important part of the plant sciences, especially for breeders. However, breeding programs are burdened with a yearly proliferation of crossing data often stored in a cumbersome spreadsheet-like environment. In a simple database system that allows for quick and accurate querying, *PediTrack* takes the spreadsheet one step farther to generate pedigrees in an easily understandable format. Other pedigree programs are available commercially, yet they are often bundled with expensive statistical analysis software, are particular to certain organisms, or unadaptable because of their specific nature to

certain breeding programs. In the last 25 years, a few attempts to make pedigree programs available to the general horticultural community have been made. Recent pedigree programs have been incorporated into larger, multi-purpose breeding computer programs (Khanizadeh et al., 1999, 2000; Khanizadeh and Ghavami, 2004). These provide significant advantages to horticulturists, however a fee is required to purchase the programs. The advent of new, more powerful PC-based software such as Microsoft Access (Microsoft Corp., Redmond, Wash.) allows plant breeders to construct their own databases with little additional investment in hardware and programming. *PediTrack* was developed from this model.

The purpose of *PediTrack* is to allow a PC user with Access version 2000 or higher to use the simple program without charge. It consists solely of the basic framework for housing pedigree

information and reporting pedigrees based on those records. *PediTrack*'s main interface is a switchboard with six options for the user: Enter Parentage, Edit Parentage, View Pedigree, View Entire Genotype List, Search Genotypes by First Letter, and Exit *PediTrack*. Even though no prior knowledge of the software platform is required to use *PediTrack*, some previous experience with the program enhances the user's ability to function more proficiently within the domain of the program.

Entry of parental information in *PediTrack* is self-explanatory; only the selection name, male parent, and female parent need be entered. This can either be done in the form view or the datasheet view. All parental entries must be entered by the user, as *PediTrack* was designed to house data that are unique for an end-user's individual breeding program. Records that already exist within a spreadsheet can be easily imported into *PediTrack* using the "Import" option or by cutting and pasting.

Pedigree reports will only display those parents that have already been entered into the program. Blank spaces represent missing parents. The pedigree report is a visual representation (a dendrogram or family tree) of up to five generations of parental information (Fig.1) that is generated through a series of complex queries. The program has proved useful at the University of Arkansas for investigating lineages leading to the founding clones of blackberry and raspberry (*Rubus*) cultivars (Stafne et al., 2003) and other general breeding activities such as crossing plans.

*PediTrack* was created due to a void in free software that is customizable for personal use (for possibilities see Stafne et al., 2001). It is available free of charge and no restrictions are made on its use. *PediTrack* was generated with Access 2000 and therefore will not run on earlier versions of the program. It should, however, be upgradeable to newer versions, such as Windows NT or XP (Microsoft Corp.). No warranties or guarantees are made for the distribution and functionality of *PediTrack* and the authors do not accept liability for lost or corrupted data. This program is distributed free of charge as an e-mail attachment from the author.

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Mention of trade names or commercial products in this paper is solely for the purpose of providing specific information and does not imply recommendation or endorsement by the University of Arkansas.

Pedigree of: **Cherokee**

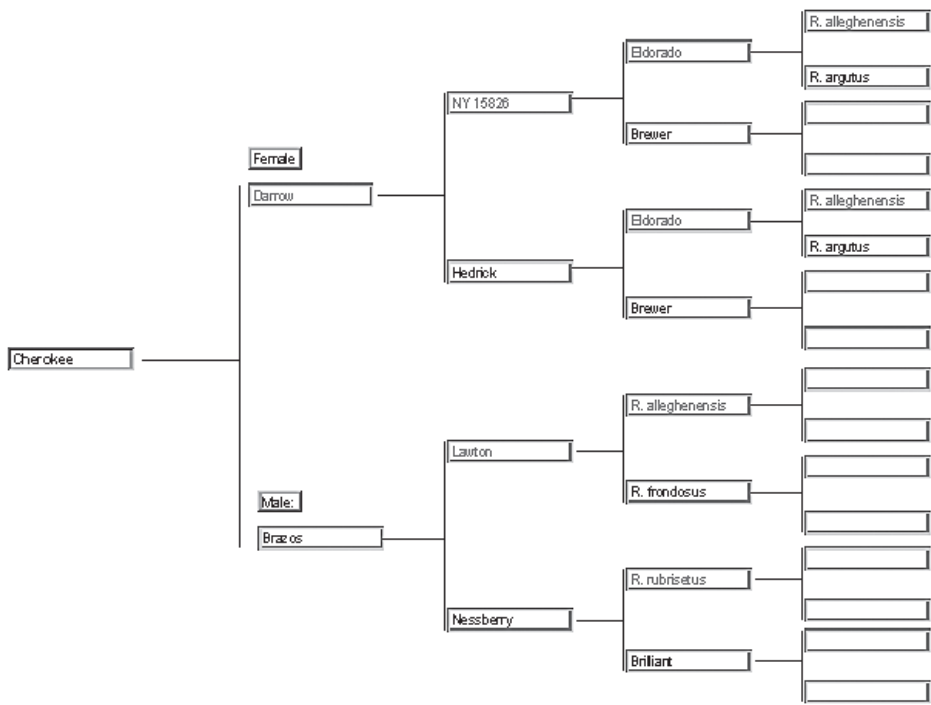


Fig. 1. An example of pedigree output from PediTrack that can either be printed or viewed on the computer screen. Female parents are always the top entry on each individual bracket. Parents are also color-coded for females (red) and males (blue) to facilitate instant identification upon viewing with a color monitor.

### Literature cited

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