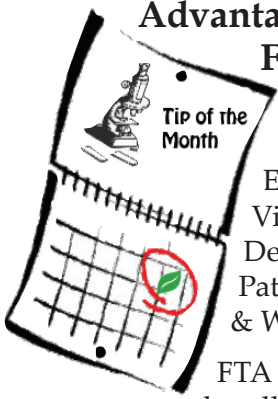


# Diagnostic Updates

## Advantages of Using FTA Cards in the Diagnostic Lab



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FTA cards simplify the handling, storage and processing of nucleic acids. FTA cards lyse cells, denature proteins and protect nucleic acids from nucleases and oxidative and UV damage. DNA captured on an FTA card can be ready for PCR or other downstream applications in less than 30 minutes (no extraction necessary).

There are a number of advantages to using this technology in a busy diagnostic lab. For example, nucleic acids from a culture, plant tissue or sample suspension (e.g. vascular tissue in nuclease-free water) can be quickly captured onto an FTA card. This captured sample can be used immediately or stored for later use. In our diagnostic lab we have found this quality very helpful when working with isolates that we would like to sequence later (when plant sample pressure eases and we have time), for example. We no longer have to maintain a clean culture/continue to transfer a culture over a long period of

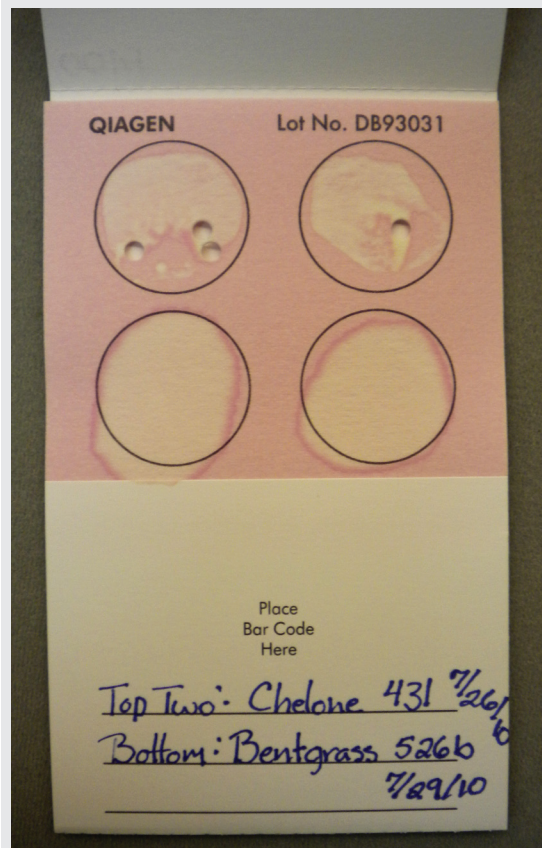
time until laboratory staff has time to extract the DNA.

To prepare FTA-captured samples for downstream applications, small disks are excised from the card using a hole-punch device and the disks are washed and ready for downstream applications, such as PCR, in about 30 minutes. FTA cards are great for archiving DNA samples/positive controls or for storing DNA for later sequencing or other downstream applications. FTA cards with captured sample nucleic acid can be stored at room temperature for years.

Sample nucleic acid captured on FTA cards can also move interstate without a permit.

A number of vendors sell Whatman™ FTA cards and the required purification solution used to wash the hole-punched FTA disks before downstream applications, such as PCR. There are a number of different options regarding card sizes and shapes. I prefer to use the “indicator” FTA cards, which change from

pink to white when the sample is applied and also prefer the “four spot cards”. Whatman™ is continuing to improve this technology and, I think, now has a



FTA 4-spot indicator card showing disks removed from top two circles. Photo courtesy of Elizabeth Bush, Virginia Tech.

card that does not require a purification/wash step.

Our laboratory has used FTA cards for capturing DNA from cultures of fungi and oomycetes: excise a shape/size from an actively growing culture that corresponds with the shape/size of the target on the FTA card. Then place the mycelia-side down on the FTA card and allow to sit for two minutes. Remove the mycelia/agar from the FTA card and allow the card to dry before storage or washing/downstream application. Our lab has used DNA captured by this method successfully in PCR amplification in preparation for sequencing.

We have also used the FTA card technology for the tomato bacterial canker pathogen, *Clavibacter michiganensis* subsp. *michiganensis*, by placing a small piece of tomato vascular tissue in nuclease-free water in a microfuge tube for approximately two minutes, then transferring the suspension to the FTA card. DNA captured using this method was used successfully in a PCR application.

One final precaution: Through personal communication I know some laboratories, have not found FTA cards as successful as extraction when sequencing due to smaller amounts of final PCR product. Our laboratory is working toward optimizing a protocol using FTA cards as a component of a reliable *Phytophthora*-sequencing protocol.

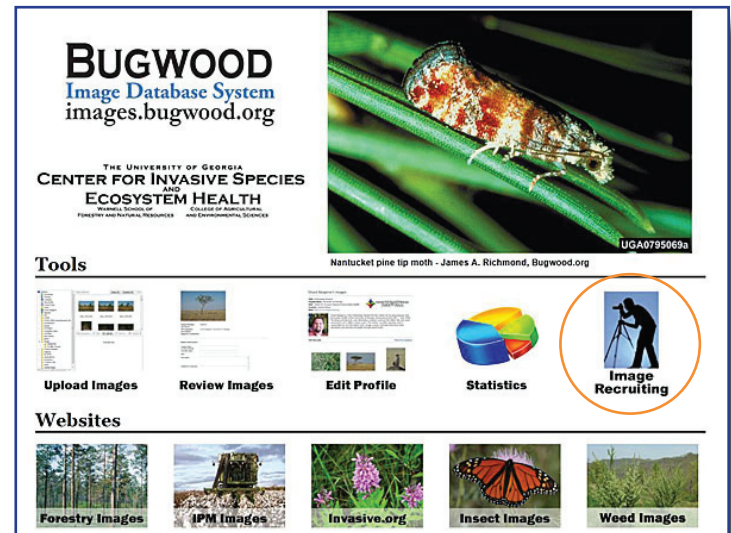
#### References:

FTA Nucleic Acid Collection, Storage and Purification, Whatman Ltd 2007-2009. Online at [www.whatman.com/](http://www.whatman.com/) 

## Image Recruiting to Advance IPM and Diagnostic Resources

Joseph LaForest, University of Georgia, Center for Invasive Species and Ecosystem Health

Photographers often ask us what images are still needed or what images we are looking to add to the Bugwood Image Database. Our answer is based on the projects we currently have and what images are already in the image database. To make it easier for us to



make our recruiting lists available and be able to mark off those species that we have a representative set of images for, we have developed a new image recruitment page from <http://images.bugwood.org>. The new page has three sections:

### 1. THE TOP 25

We count the number of times a subject appears across all of the lists and post a list of the top 25 insects, diseases, plants, wildlife and nematodes. As new images are sent in, we review the available images and determine if we have a representative set. Once we do, it is checked off the recruiting list and new species move up to the top 25.

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