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ONLINE MANAGEMENT TOOLS FOR PISTACHIO PRODUCTION

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The Internet and World Wide Web have made information searches incredibly easy for billions of people around the world. The Internet is a network of computers (or actually a network of networks) that are connected via phone lines, cables, etc. When computers are interconnected, information can be exchanged. The World Wide Web (or www) is the graphical Internet service that provides a method to locate and view documents. It uses a technology called "Hypertext", which allows parts of a document to be linked to any part of another document in digital form. This technology allows the user to locate specific information very quickly, without having to look at entire documents.

Most computer users employ a search engine to locate information when they do not know the specific web sites to search. Two of the more common search engines are "Google" and "Yahoo". The website <http://searchenginewatch.com> rates the different search engines each year, and has more information about using them. Search engines ask you to type in "key words" or select from some of their existing categories to assist you in information searches. Recently, one of the authors typed in the key words of California Pistachios into the Google search engine, and 172,000 links were available. These links would include web sites devoted to pistachios, but also single documents that maybe mention pistachio once or twice, such as food recipes. So, it is more efficient to make the searches more specific, and then to save the address of desired web sites.

For example, the University of California Fruit & Nut Research and Information Center has a web site, <http://fruitsandnuts.ucdavis.edu>, that includes pistachio information, and additional links to other helpful web sites.

From this home page, select **Crop Information**, then select **Management Tools** at the top of the page to find a collection of links to information provided by University of California (UC) faculty, UC Cooperative Extension (UCCE) Specialists, Farm Advisors, and IPM Advisors. Representative links include: Using the Pressure Chamber to Monitor and Manage Irrigation, Fungicide Timing and Efficacy for Deciduous Fruit and Nut Tree Crops, and Chilling Unit Accumulations.

These links are not only to plain text pages, but many are interactive calculators, while others include photos, illustrations, audio files, and slide shows. For example, one can link to Ken Shackel's article describing use of the pressure chamber to measure tree water potential, with links to a diagram of the instrument as well as to photos showing various steps in the process.

Select **Pistachio**, from the **Crop Information** page, to view a wealth of information specific to pistachio production. Links have been listed in categories such as: General Publications, Meetings & Education, Management Tools, Production Economics, Centers, Programs, Collections, and Organizations. Representative links include:

- Farm Advisor's Newsletters
- Pests of Pistachio - UC Pest Management Guidelines, UC IPM
- Diseases of Pistachio - American Phytopathological Society
- Crop Profile for Pistachios in California - USDA, OPMP & PIAP
- Sample Costs to Establish a Pistachio Orchard and Produce Pistachios, 2004 - Dept. of Agricultural and Resource Economics, UCD

- Pistachio Collection - National Clonal Germplasm Repository for Tree Fruit/Nut Crops and Grapes
- California Pistachio Commission

The Fruit & Nut Research and Information Center's web site allows one to access other timely information, too. The weather, especially chilling units, is important to you and your crop. Keep track of chilling hours between November 1st and March 31st to get a sense of needed orchard management practices and to compare past year's weather and crop load by selecting **Weather Services** from our home page.

Then, select **Chilling Unit Accumulations** to retrieve current daily chilling unit accumulations and 5-year historical chilling accumulations, for each California Irrigation Management Information Systems (CIMIS) weather station. Three calculation methods are available: hours below 45° F; units between 32° F and 45° F; and the Utah model.

With this data, pistachio growers can assess whether sufficient chilling units, especially those between 32° F and 45° F, have accumulated particularly after February 15th, to determine if dormancy enhancing oil applications should be

applied to ensure a more uniform and effective bloom.

Meetings, training opportunities, short courses, and tours are an important component of UC's extension efforts. Select **Calendar** from our home page to find dates, locations, and contact information for these activities.

Finding specific information from our web site is easy if you use the **Search** capability located near the bottom of each web page. When the list of your search results is displayed, click on a title to view the web page that includes your search term.

Another useful web site is the California Pistachio Commission, <http://www.pistachios.org/>. This site however, has information for growers, processors, and consumers, so a grower will need to search or navigate the site for "tree information". In this case, there is a pull down menu at the top which is labeled "Industry", and grower friendly information can be found under that category. In summary, there is much information on pistachios that is available through the Internet. The computer user will save time and energy to making the search as specific as possible and saving useful web sites for reference later.