

WEB-BASED INTERACTIVE ORCHARDING TOOLS

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It's estimated that half the commercial and hobby fruit growers in New England today use a computer to access fruit production information on the Internet. Thus, in the past few years, numerous Internet resources of interest to fruit growers have been developed. Mostly, these web sites mirror existing publications, i.e. orchard production and crop protection guides, fact sheets, newsletters, etc. Good examples include the PennState Tree Fruit Production Guide <<http://tfpg.cas.psu.edu/>>, and Scaffolds Fruit Newsletter <<http://www.nysaes.cornell.edu/ent/scaffolds/>>.

Some web sites also include up-to-the date production and pest management information including diagnostic keys and pictures that significantly enhance print publications; a particularly good example is West Virginia University's Tree Fruit Research and Extension Center <<http://www.caf.wvu.edu/kearneysville/>>. A few web sites go even a step further by including web-based interactive orcharding tools that ought to be very useful to orchardists as we move into a new century of fruit growing.

First, why develop and deploy web-based orcharding tools? As mentioned, the trend is clear—more and more savvy fruit growers are equipping themselves with computers and using the Internet for information to help them be more productive and profitable orchardists. Soon, tapping the Internet for timely, comprehensive, and value-added fruit production information will be the norm. Clearly then, those who buck the trend will fall by the wayside as information providers (i.e., extension, industry, and the grower community itself) exploit the universal availability, easy development, and timely information delivery offered by the standards-based Internet. Bottom line: the Internet has become the communication and information delivery vehicle of choice for business conducted in this country today, and fruit growing should be no exception!

So, assuming that the Internet will be an integral part of every orchardist's day-to-day business, what's needed to join your peers on the Internet if you are not already there? It's really quite simple. First, you need a personal computer running either Windows or Macintosh Operating Systems (<<http://www.microsoft.com/windows/>> or <<http://www.apple.com/software/>> respectively). Second, you'll need an account and Internet connection provided by an Internet Service Provider (ISP). ISP's include America On-Line <<http://www.aol.com>> and Earthlink <<http://www.earthlink.net>>; or, for a list of local ISP's, check out 'The List' <<http://www.thelist.com/>>. Finally, you need a web browser application. Popular web browsers include Microsoft's Internet Explorer <<http://www.microsoft.com/windows/ie/default.htm>> and Netscape's Communicator <<http://home.netscape.com/computing/download/index.html>>. That's it, that's all you need to take advantage of the Internet in your orchard business.

OK, you know that web-based interactive orcharding tools are worth checking into, and you now have an Internet-connected personal computer, so where can you find some real-world applications? Well, here are a few good examples of web-based interactive orcharding tools worth looking into:

Previously mentioned was the PennState Tree Fruit Production Guide <<http://tfpg.cas.psu.edu/>>. The Guide is an exemplary example of porting a print publication to the web. However, they have gone further to include several useful 'Javascript' Programs ('Javascript' is simply a programming language that works with your browser to actually 'do' something such as a calculation.) For example there is a 'JavaScript' Program for **Determining the Amount of Elemental Calcium in a Commercially Formulated Product**. Based on your input, you can

easily compare costs of different products based on calcium content, or determine the amount of product per acre needed. Another program is a utility for apple growers to help them **Calculate the Costs of Various Tree Support Systems**. Of course, these examples are tailored to Pennsylvania fruit growing conditions; however, they can easily be used for Northeast orchards with little (if any) modification or interpretation.

Apple Scion/Rootstock Selection and Planning for Michigan

<http://www.hrt.msu.edu/department/Perry/Apple_Articles/misspacingfinal1.htm> is a very helpful program for determining in- and across-row apple tree spacing based on user input. The grower enters several factors, including scion variety, rootstock, soil vigor class, irrigation presence or absence, and management intensity and planting system. The program quickly computes suggested tree-row width and between-tree distance within rows. Again, the calculations are tweaked for regional (Michigan) conditions; however, they ought to be applicable to most northeast orchards, too.

A Block-Specific Sprayer Calibration Worksheet

<<http://www.umass.edu/fruitadvisor/clements/trvcalculator.html>> on the UMass Fruit Advisor <<http://www.umass.edu/fruitadvisor/>> makes on-the-fly calculations of Dilute Gallons Per Acre based on Tree Row Volume. Furthermore, it makes quick work of determining sprayer output in Gallons Per Minute based on the Dilute GPA calculation, desired spray concentration, and tractor travel speed. Now you have no excuse for not making block-specific sprayer calibration calculations! Also on the UMass Fruit Advisor are a couple of calculators for

Predicting Scald Incidence in Delicious Apples

<<http://www.umass.edu/fruitadvisor/clements/scaldpredictor.html>>. All you need to input is harvest date, number of days below 50^o F., and starch index at harvest. Using the calculator you can easily fine-tune your need (or lack of need!) for pre-storage DPA treatment of Northeast grown Delicious.

Glen Koehler's **Orchard Radar** site <<http://pmo.umext.maine.edu/apple/applpage.htm>>, hosted by the University of Maine Apple IPM Program, has been in the forefront of web-based orcharding tools for a number of years. Based on a commercial, site-specific weather product (E-Weather[®], <<http://www.skybit.com>>) delivered by Internet e-mail, Orchard Radar "uses the data as input for apple pest management and horticulture models, and then uses the Internet again to distribute the model estimates to growers." During the growing season—and currently only for the University of Maine's Highmoor Farm—new web pages are generated daily that include: apple scab disease models (infection periods, fungicide timing, ascospore maturity); fireblight daily risk and symptom dates; flyspeck prevention and spray dates based on fungicide class; insect models (codling moth, leaf rollers and miners, leafhopper, san jose scale, etc.) that include emergence and activity based on degree day accumulations; insecticide residue depletion for plum curculio; European red mite key (emergence) and resampling dates; and storage scald–September chilling hour accumulation, among others. Orchard Radar's clear intention is to be a "supplementary" tool for decision making, and at this point is only applicable to orchards near Highmoor Farm in Maine. However, it's destined to be a preview of both the 'cutting edge' present and the future of enhanced IPM information delivery and interpretation.

So, get on-line (be there or be square!) and check out these web sites with interactive orcharding tools. Be sure to contact the author/developer if you have any feedback, usability problems, or perhaps a suggestion for another useful tool that could be deployed on the web. Remember, change in the fruit industry is happening at an unprecedented rate, and you can bet the web will play a far greater and more useful role in the future of orcharding.