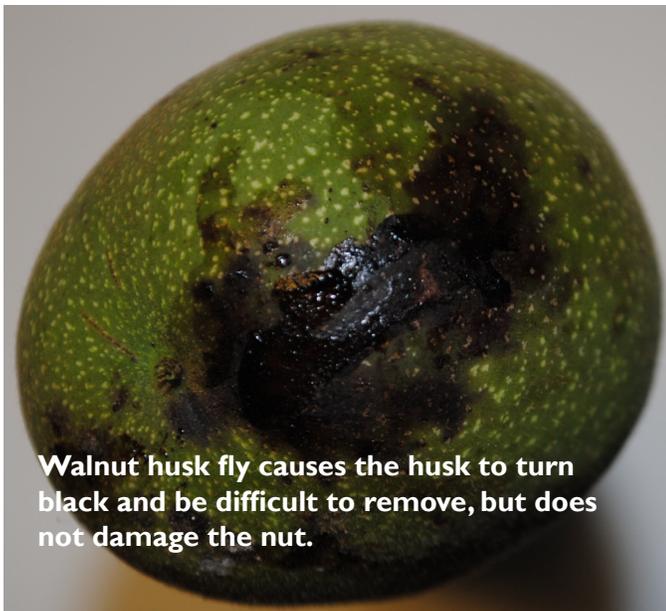


News/What to Watch For:

- Most areas now have a “break” between codling moth and peach twig borer generations except Salt Lake City, at which codling moth second generation starts now.
- Make sure trees are getting watered properly in this hot, dry weather.
- Iron chlorosis is evident on new foliage of peach, plum; consider getting leaf nutrition analysis in early August
- News and Production Information on page 2

Insect and Disease Activity/Info

Walnut Husk Fly

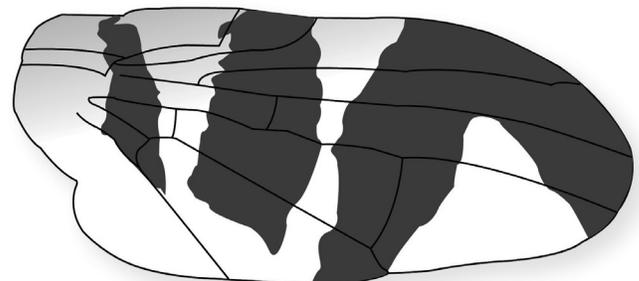


Walnut husk fly causes the husk to turn black and be difficult to remove, but does not damage the nut.

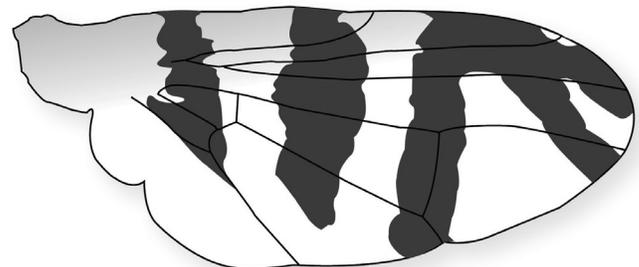
We have received reports from Layton and other areas of northern Utah that walnut husk fly has been found, so it is now time to treat black and English walnut trees for this pest for all areas of northern Utah. Late peach varieties are also susceptible, where they are growing near walnuts. Emergence will continue to late September, with peak emergence to occur starting the week of July 23.

This is a full month earlier than last year, which unfortunately means more treatments on the walnuts. Begin sprays now, continuing at regular intervals until the walnuts are within 1 month of harvest. Eggs laid later than this will not have time to develop and cause damage. If you are not sure if you have walnut husk fly, you can hang a Pherocon AM yellow sticky

trap (purchase online or by phone from Great Lakes IPM). The flies are identified by their wing pattern.



Walnut Husk Fly



Western Cherry Fruit Fly

If you don't mind the extra work of removing the damaged husks, treatment on walnuts is not entirely necessary because the kernel is usually not damaged. Storing the infested nuts in a damp burlap bag for 2-3 days will help in husk removal.

Early walnut husk fly feeding on young walnuts causes the nut to shrivel, turn moldy, and drop prematurely. Later feeding (late Aug. – Sept.) will not affect the kernel, but will result in a husk that is stained black and a hull that is difficult to separate from the nut. The maggots feed for 3 to 5 weeks before dropping to the soil to pupate.

Insect and Disease Information, continued from previous page

Options for backyard trees are spinosad (Green Light, Gardens Alive Bull's Eye, Monterey) which is applied every 7 days, or acetamiprid (Ortho Flower, Fruit, and Vegetable), which is applied every 14 days. Make sure you cover the entire tree.

Another option is using a bait with spinosad. The bait attracts the adult flies to feed on the product, and the spinosad kills

the flies. GF-120 is a prepared bait, but is only sold in gallon sized containers for at least \$80. You could consider mixing your own bait solution with spinosad concentrate, and about 4 to 6 tablespoons of molasses per gallon of water applied. The GF-120 or homemade spray mix does not need to cover the entire tree. Instead, it should be applied as evenly spaced, large droplets.

News and Production Information

Fruit Grower Meetings



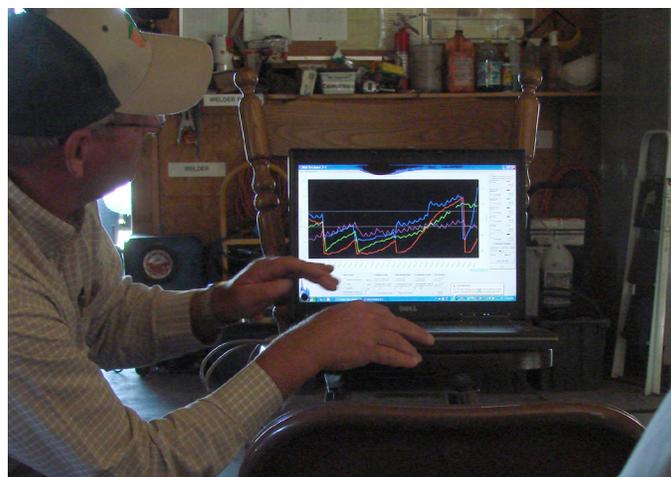
The fourth summer field meeting for the Northern Utah Fruit Growers (commercial growers in Box Elder, Weber, Cache, and Davis counties) was held on the evening of Wednesday, June 27, at the North Ogden LDS Church Welfare Peach Farm. The growers learned about upcoming pest issues to watch for, including an interesting explanation of Diane Alston's research on prionus root borer. This can be a troublesome pest of cherries in sandy soils. (More about that work can be found in a past Utah Pests News article).

Much of the time was spent on the importance of irrigating trees in summer (see next article below). Dr. Brent Black explained the use of ET readings on the Utah Climate Center orchard weather data website, soil moisture meters (every commercial orchard should use them), what the readings mean, and how to interpret them. He has several fact sheets on irrigating fruit trees, and those links are provided in the article below.

USU Extension Ag Agent, James Barnhill, showed the use of "high tech" moisture monitoring sensors whose data can be downloaded to a special software program that provides precise information on when to water, and the effectiveness of the waterings. We ended the meeting by touring the orchard to learn from the manager, Bruce Liston, about the successful

management practices that are conducted on the farm.

If you are a commercial grower in any of the counties listed above and are interested in attending a meeting (but do not receive the email or postcard announcements), please send us a message with your contact information. The meetings are a great way to learn about pest and production information from USU Extension, and to ask questions about your own orchard.



The next meeting will occur in September to discuss fall chores. Hope to see you there!

Orchard Irrigation is Important in Hot, Dry Weather

Content obtained from the "Orchard Irrigation" fact sheets by Dr. Brent Black and others found on the USU Extension website.

Commercial and home growers should be thinking about irrigation practices for fruit trees, especially during the time when fruit is on the tree and ripening. Drought stress will reduce fruit size or lead to sunburn or shriveling, and will stress trees so that they may be more susceptible to flatheaded borers.

Stone fruits, in particular, are sensitive to water stress during

News and Production Information, continued from previous page

the period of flower bud formation for the following year (which can lead to double-fruiting), usually in July. Over-irrigation is just as detrimental, especially in poorly drained soils.

Tree water use

How much water fruit trees use depends on species, cultivars, tree size and air temperature. Trees use water daily through uptake by the roots and then transpiration from the leaves. This daily water use can be measured by evapotranspiration (ET), expressed as inches/day or inches/week, which is the amount of water evaporating off the soil surface plus the water used by the tree.

ET is estimated from air temperature, relative humidity and wind speed. At full bloom, an orchard is using very little water. Water use increases dramatically until the full canopy is established, and increases again slightly (mid-season to harvest for apple, fruit ripening for peach), and then declines after harvest.

Water output

Whichever irrigation system you utilize, it is important to know how much water is being applied.

- *sprinklers and microsprinklers*: place catch cans in multiple locations in your planting and collect water for a known period of time. Measure the inches collected in each can and calculate an average of all the cans.
- *drip irrigation*: measure flow rate (in gal/hr) by placing catch cans under the emitters. When setting up drip, keep in mind that it is sufficient if the drip irrigation wets 25 - 60% of the root zone for mature trees.

Ways to determine when to water

Soil moisture meter

There are a few options for measuring soil moisture with sensors, some more expensive than others. The advantage to using a soil moisture sensor is that there are no calculations to make and a reading of moisture is instantaneous. Ideally, several sensors should be placed throughout the orchard at varying depths. For each sensor, the reading (depending on soil type) will determine when to water.

Moisture blocks (Watermark™ sensor Irrrometer Co., Riverside CA) are permanently installed in the soil, and wires from the sensors are attached to a handheld unit that measures electrical resistance (about \$145). The handheld unit reports soil moisture content in centibars, where values close to zero indicate a wet soil and high values represent dry soil.

Tensiometers (many brands), which are less expensive,

measure soil moisture tension, which indicates the effort required by root systems to extract water from the soil. Higher tension means drier soils.

Using ET

This method calculates the amount of irrigation required based on a percentage of the evaporation rate. The percentage used is called the crop factor. Crop factors vary with crop type and the growth stage of trees.

You can get ET readings for a variety of locations in Utah from the Utah Climate Center's "orchard weather data" website. (Select the location, then the year, and hit submit for a table from Jan 1 – today). The crop coefficients are published in the following fact sheets by Dr. Brent Black and others, for each fruit: cherry, peach, apple.

How Much Water is Needed

Irrigation requirements depend on how much water your soil type can store. If you apply too much water, it percolates below the root zone, leaching away nutrients, and is never used. About 70% of water usage occurs in the upper 2/3 of the rooting zone, which is about the upper 18-24 inches of soil.

Soil moisture sensors will tell the level at which field capacity occurs. By graphing the readings from soil moisture meters over time, you can fine tune when to water and how much to use. Efficient irrigation aims to keep the readings of the sensors between field capacity and the plant's stress point. By having the sensors at at least 2 different depths, you can determine whether you are under- or over-watering.

ET values can be used to determine how much water is needed to irrigate effectively, and how often, but requires a bit of calculation. You will need to know the following:

- weekly ET
- the crop coefficient value
- total storage capacity for readily available water
 - ◇ sandy: 0.75-1.5 inches/3 ft depth
 - ◇ loam: 2-3 inches/3 ft depth
 - ◇ clay: 2.5-3 inches/3 ft depth
- the efficiency of the type of watering system you use
 - ◇ microsprinkler or drip: 70 to 90% efficient
 - ◇ overhead sprinkler: 60 to 75% efficient
 - ◇ flood and furrow irrigation: 30 to 50% efficient

More on these calculations can be seen in the individual fruit fact sheets noted above.

News and Production Information, continued from previous page

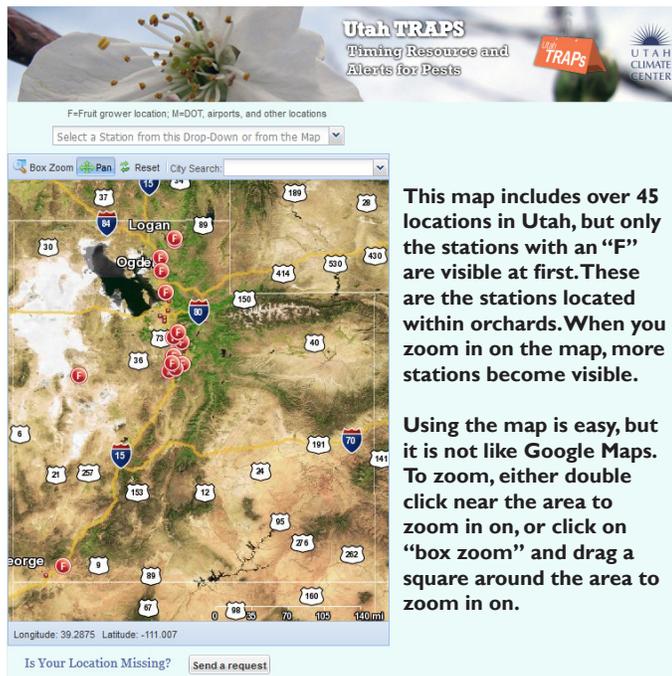
How to Look up Codling Moth, Peach Twig Borer Spray Dates Online

The TRAPs website www.climate.usu.edu/traps (Timing Resource and Alert for Pests), housed on the Utah Climate Center website, is a valuable tool for looking up when to spray certain plant pests. The TRAPs website provides this information for almost 60 locations in Utah.

This is where we get the “when to spray” information for these IPM pest advisories. And for some pests, like codling moth and peach twig borer, we can tell how many adult moths have emerged and how many eggs have hatched per generation based on daily temperatures. That information is also included on the TRAPs website.

The steps below show how to use TRAPs, or you can view a video tutorial on the opening TRAPs web page (climate.usu.edu/traps) that explains the site in more detail.

TRAPs opens with a map loaded with red “dots” that represent weather stations in Utah. Note that the map takes a few moments to load the stations:



Utah TRAPs
Timing Resource and Alerts for Pests

F=Fruit grower location; M=DOT, airports, and other locations

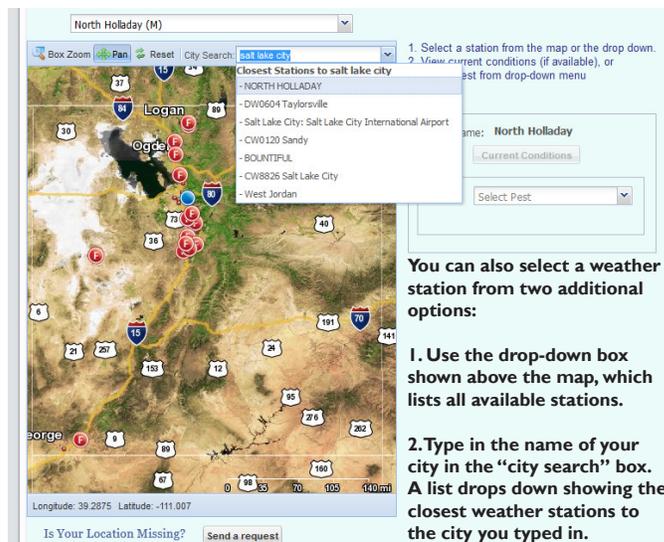
Select a Station from this Drop-Down or from the Map

This map includes over 45 locations in Utah, but only the stations with an “F” are visible at first. These are the stations located within orchards. When you zoom in on the map, more stations become visible.

Using the map is easy, but it is not like Google Maps. To zoom, either double click near the area to zoom in on, or click on “box zoom” and drag a square around the area to zoom in on.

Using TRAPs, Step 1

Select the weather station location closest to you by clicking on a red dot on the map, or by one of the two methods explained below.



North Holladay (M)

Box Zoom Pan Reset City Search: salt lake city

Closest Stations to salt lake city

- NORTH HOLLADAY
- DW0604 Taylorsville
- Salt Lake City: Salt Lake City International Airport
- CW0120 Sandy
- BOUNTIFUL
- CW8826 Salt Lake City
- West Jordan

Station Name: North Holladay

Current Conditions

Select Pest

1. Select a station from the map or the drop down.

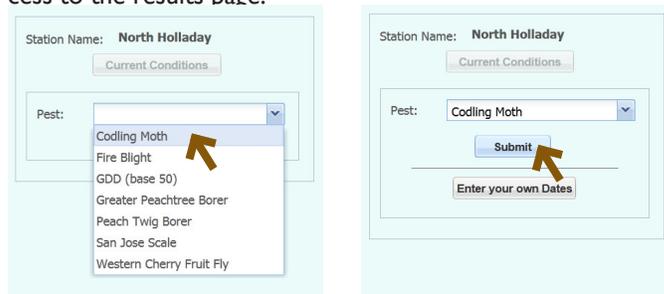
2. Make current conditions (if available), or select from drop-down menu

You can also select a weather station from two additional options:

1. Use the drop-down box shown above the map, which lists all available stations.
2. Type in the name of your city in the “city search” box. A list drops down showing the closest weather stations to the city you typed in.

Using TRAPs, Steps 2 and 3

After you have selected your city, click on the “pest” drop down list to select the pest. Then, hit “submit” for quick access to the results page.



Station Name: North Holladay

Current Conditions

Pest: Codling Moth

- Codling Moth
- Fire Blight
- GDD (base 50)
- Greater Peachtree Borer
- Peach Twig Borer
- San Jose Scale
- Western Cherry Fruit Fly

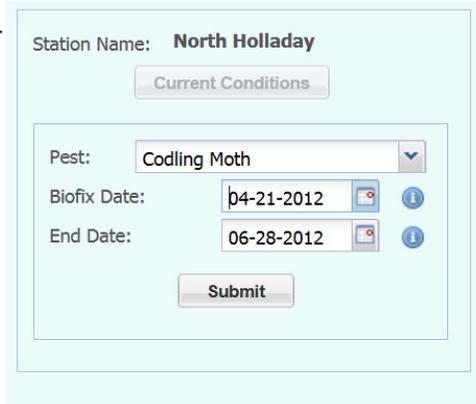
Submit

Enter your own Dates

Using TRAPs, Alternative to Step 3

If you hang monitoring traps and determine a biofix for certain pests on your own farm, you can enter that information by clicking on “Enter your own Dates.” The biofix date is the date of first moth flight, and the end date is typically the current date. This option is also useful to look at historical dates

to make comparisons.



Station Name: North Holladay

Current Conditions

Pest: Codling Moth

Biofix Date: 04-21-2012

End Date: 06-28-2012

Submit

News and Production Information, continued from previous page

Using TRAPs, Step 4

The results page shows all data from the pest biofix/start date to the current date, plus 5 weeks of forecasted data (the first 6 days are local forecast and the remaining is from 30-year averages). For example, this table below shows that in North Holladay, on June 28, egg hatch for the second generation of codling moth is just beginning (1.3%), and that about 16% of

Date	Min °F	Max °F	% Moth Flight	% Egg Hatch	Degree Days	Source
06-28-2012	64	97	15.9	1.3	1126	Forecast
06-29-2012	61	97	19.4	2	1154	Forecast
06-30-2012	63	96	23.2	3	1181	Forecast
07-01-2012	57	93	27.4	3.5	1209	Forecast
07-02-2012	63	96	31.6	4.7	1233	Forecast
07-03-2012	65	96	36.2	7.1	1261	Forecast
07-04-2012	65	94	41	9	1290	Forecast
07-05-2012	67	89	45.7	10.9	1318	30YR Nor...
07-06-2012	68	89	50.9	14.6	1346	30YR Nor...
07-07-2012	68	89	55.1	17.4	1374	30YR Nor...
07-08-2012	68	90	60.3	21.3	1402	30YR Nor...
07-09-2012	68	90	64.7	25.7	1431	30YR Nor...
07-10-2012	68	90	69	30	1460	30YR Nor...
07-11-2012	69	90	74.3	34.4	1489	30YR Nor...
07-12-2012	69	90	77	39.6	1518	30YR Nor...

The first row of the results table is the current date, and past and future dates can be accessed by scrolling.

The table shows temps, insect development, and accumulated degree days.

All data shown in the table can be exported to Excel.

adult moths have emerged.

Click on a row with a blue circular “information” icon to see the “Management Actions” on the right side of the table. This

Date	Min °F	Max °F	% Moth Flight	% Egg Hatch	Degree Days	Source
06-28-2012	64	97	15.9	1.3	1126	Forecast
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07-01-2012	57	93	27.4	3.5	1209	Forecast
07-02-2012	63	96	31.6	4.7	1233	Forecast
07-03-2012	65	96	36.2	7.1	1261	Forecast
07-04-2012	65	94	41	9	1290	Forecast
07-05-2012	67	89	45.7	10.9	1318	30YR Normal
07-06-2012	68	89	50.9	14.6	1346	30YR Normal
07-07-2012	68	89	55.1	17.4	1374	30YR Normal
07-08-2012	68	90	60.3	21.3	1402	30YR Normal
07-09-2012	68	90	64.7	25.7	1431	30YR Normal
07-10-2012	68	90	69	30	1460	30YR Normal
07-11-2012	69	90	74.3	34.4	1489	30YR Normal
07-12-2012	69	90	77	39.6	1518	30YR Normal

Management Actions

Date: 2012-06-28

Degree Days: 1120 - 1150

Action: Second Generation egg hatch begins.

Start sprays (Delegate, Altacor, Assail, Belt, Intrepid, etc.) and continue every 14-21 days until end of egg hatch, which corresponds to 2100 degree days (typically 2-3 additional sprays depending on temperatures).

information tells when to start or stop sprays.

We hope that the TRAPs website is useful for you, and appreciate your feedback. If you are in a location that is not represented on the map, you can notify us by clicking on the link below the map on the TRAPs home page, that says, “Is your location missing?”

Precautionary Statement: Utah State University Extension and its employees are not responsible for the use, misuse, or damage caused by application or misapplication of products or information mentioned in this document. All pesticides are labeled with ingredients, instructions, and risks. The pesticide applicator is legally responsible for proper use. USU makes no endorsement of the products listed herein.

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[click here](#) for archived advisories