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[click here](#) for archived advisories

Bud Phenological Stages

Development of buds on trees in northern Utah has continued to progress quickly. See last page for pictures.

Davis County, Box Elder County, Salt Lake County:

Apples: Half-inch green+
Apricots: Full bloom
Cherries: Bud burst
Peaches: First pink-first bloom
Pears: Bud burst

Cache County:

Apples: Silver tip - Green tip
Cherries: Swollen bud
Peaches: Swollen bud
Pears: Swollen Bud - Bud burst

Utah County:

Apples: Half-inch green+
Cherries: Barely bud burst
Peaches: First pink-first bloom
Pears: Bud burst

Weber County:

Apples: Half-inch green
Apricot: Bloom
Cherries: Bud burst
Peaches: First pink-first bloom
Pears: Bud burst

Upcoming Monitoring/Insect Activity

Codling Moth	Hang traps at 100 degree days (base 50) First flight at 190-260 DD
Rosy apple aphid	First egg hatch around 90 DD (base 50)
European red mite	First egg hatch around 135 DD (base 50)
Campylomma bug	Egg hatch begins at first pink (apples)
White Apple Leafhopper	Egg hatch begins at first pink (apples)

[WSU Crop Protection Guide](#) (for commercial growers) is now posted online.

Degree Day Accumulations

Above average temperatures continued for a second week in a row. Cooler weather this week should slow this trend down.

March 1 - Wednesday, March 28

County	Location	Base 40	Base 50
Box Elder	Perry	208	90
Cache	North Logan	118	46
	River Heights	154	69
Carbon	Price	248	128
Davis	Kaysville	220	97
Salt Lake	SLCC	262	119
	West Valley City	234	102
Utah	Alpine	202	83
	Genola	251	123
	Lincoln Point	203	88
	Payson	190	86
	Provo	260	130
	Santaquin	210	92
Weber	West Mountain	165	81
	Pleasant View	234	110

“Base 40” and “base 50” refer to the lower temperature threshold at which certain insects develop. “Base 50” degree days applies to: codling moth, peach twig borer, and greater peachtree borer. “Base 40” degree days applies to: western cherry fruit fly and oblique-banded leafroller.

General Information

The last two advisories I discussed delayed-dormant applications to treat several insects. In most locations, however, it is too late for the horticultural oil treatment:

Apples: swollen bud - 1/4" green

Pears: swollen bud - cluster bud

Peaches and Nectarines: swollen bud
- pink bud

Weather Notice:

Lows did not get down as far as predict-

ed for Wednesday morning, but beware of cold temperatures for much of northern Utah Thursday morning. See the next page for a table on critical temperatures for flower and bud damage.

Orchardists use heaters if available, or turn on wind machines.

Homeowners, unfortunately, have few options. One is overhead irrigation, but this can be costly. The idea is to cover

the buds and blossoms with water that will freeze, forming an ice layer. Remember that water freezes at 32 degrees F, and a permanent, uninterrupted layer of ice throughout the frost period will insulate those flowers and buds. The ice must remain until the daytime air temperatures rise above freezing.

But only a 10% loss of a tree's flowers may be tolerable for some growers.

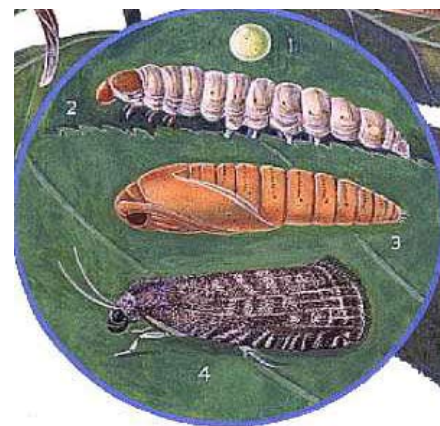
Insect Activity

Codling moth traps should be hung from your apple trees around 100 DD, which has been surpassed for some locations. Hang traps as high as you can comfortably reach (6-7'). Find a sturdy branch and make sure trap openings are not obstructed (hang 2 traps minimum; or 1 trap per 5 acres). Check traps every few days for moths.



For commercial growers planning to use **Pheromone Mating Disruption** for either codling moth or peach twig borer, purchasing the dispensers now will allow you to deploy them as soon as you reach biofix.

Has anyone seen **Oriental fruit moth** (egg, larva, pupa, and adult shown below) in your peaches? If so, please email me at marionm@ext.usu.edu, or call 435-797-0776. Traps should go up at approximately the same time as the codling moth traps.



Disease Activity

Coryneum Blight (Peach Shothole): Peach growers should thoroughly examine trees at this time to look for cankers. Most of these infections probably occurred in the fall and have developed over the winter. A canker may look like a dark patch with reddish borders, and are often centered at buds (shown below). Dead, unopened, gummy buds on year-old wood are fairly diagnostic of coryneum blight in spring. Prune out and destroy all such cankers to reduce the number of spores that are spread by spring rains. A shuck-split spray of Bravo (Daconil for home use), Abound, Captan, Ziram, or Pristine may be necessary in orchards where fall or delayed-dormant fungicide applications were **not made**.

The shuck-split application should provide protection for the newly set fruit. If you had a



problem with this pathogen last year, hopefully you have already applied your delayed-dormant application (see prior advisories).

Fire Blight: Continue to scout your apple and pear trees for overwintered cankers. Often they will be stems or twigs with last year's leaves still attached. Prune them out 8 - 12" below the canker. If they aren't pruned out, they will become an inoculum source for infections this spring. Fire blight bacteria are spread by rain, flies, and pollinators throughout the orchard. More in the next few advisories about treatments.



Critical Temperatures for Frost Damage on Fruit Trees

From: Penn State University and
Michigan State University

	Stage of Development	10% Kill (°F)	90% Kill (°F)
Apple	Silver tip	15	2
	Green tip	18	10
	½-inch green	23	15
	Tight cluster	27	21
	First pink	28	24
	First bloom	28	25
	Petal fall	28	25
Peaches	Swollen bud	18	1
	½-inch green	25	15
	Pink	26	21
	Bloom	27	24
	Petal fall	28	25
Pears	Swollen bud	15	0
	Bud burst	20	6
	Green cluster	24	15
	White bud	25	19
	Bloom	28	24
	Petal fall	28	24
Sweet Cherries	Swollen bud	17	5
	Bud burst	25	14
	Tight Cluster	26	17
	White bud	27	24
	Bloom	28	25
	Petal fall	28	25
Tart Cherries	Swollen bud	15	0
	Bud burst	26	22
	Tight cluster	26	24
	White bud	28	24
	Bloom	28	24
	Petal fall	28	24
Apricots	Swollen bud	15	---
	Calyx red	20	0
	First white	24	14
	First bloom	25	19
	Full bloom	27	22
	Post bloom	27	24

Additional Information for Backyard Orchardists

Degree Days Demystified

I've had a few questions about degree days, so thought I'd provide a short explanation here.

A degree day (DD) is a measurement of heat units for a given base temperature over time. (A simplified way to calculate degree days is $(\text{daily maximum temperature} + \text{daily minimum temperature})/2 - \text{baseline temperature (50)}$). The actual mathematical calculation is much more complicated than that, though).

In order for us to calculate DD, we need daily maximum and minimum temperatures for a given location. We are able to get this information from sophisticated weather stations and simple thermometers. USU Extension's IPM program manages several weather stations that have been placed within orchards across northern Utah, and several individuals collect max/min temperatures at their homes and send us the information weekly.

The degree days we provide to you are used to predict what insects may be occurring. Since temperature controls the development rate of insects (and flowers), degree days are a useful tool. Scientists have studied many insects (as well as flowers) and compared their development with the amount of degree days. So for example, if I tell you that 200 degree days have accumulated in your area, we'd know that is about the time when the codling moths begin to fly. Basically degree days is a useful TOOL for predicting insect development. The table at the right shows two examples of **insect degree day models**.

What about this "baseline" temperature? Some insects begin their development when temperatures reach 50 degrees or more (codling moth, for example) while other insects begin their development when temperatures are just 40 degrees or more (western cherry fruit fly, for example). For this reason, degree days are different when referring to these two different insects. The "50 degrees" or "40 degrees" is considered the "baseline" development temperature. (Hence the two columns on the advisory on page 1.)

So not only do you need to know what the current degree days are, you need to know what insects to look for at that particular degree day range, as well as the baseline (or lower temperature threshold) for that insect (which we will provide).

Using degree days and an insect model are very important in an IPM program, so that sprays are timed accurately for the insect stage we are targeting, whether it be the eggs, larvae, or adults.

Next week: Information about getting BIOFIX, and what this means.

DEGREE-DAY ACCUMULATIONS REQUIRED FOR EACH STAGE OF DEVELOPMENT

Western Cherry Fruit Fly

START DATE: March 1	DD (F)
First adult spring emergence	832
Beginning of egg laying	974
Egg hatch	1069
50% Adult spring emergence	1136
Peak egg laying	1233
Pupation	1431

Codling Moth

START DATE: March 1	DD (F)
3% Egg hatch (1ST GEN)	250
20% Egg hatch (1ST GEN)	360
50% Egg hatch (1ST GEN)	484
75% Egg hatch (1ST GEN)	610
95% Egg hatch (1ST GEN)	800
5% Adult emergence (2ND GEN)	1000
7% Egg hatch (2ND GEN)	1260
30% Egg hatch (2ND GEN)	1460
50% Egg hatch (2ND GEN)	1580
75% Egg hatch (2ND GEN)	1750
95% Egg hatch (2ND GEN)	2000

Bud Phenological Stages

Apple



Cherry



Peach



Pear



Apricot



Precautionary Statement: All pesticides have benefits and risks, however following the label will maximize the benefits and reduce risks. Pay attention to the directions for use and follow precautionary statements. Pesticide labels are considered legal documents containing instructions and limitations. Inconsistent use of the product or disregarding the label is a violation of both federal and state laws. The pesticide applicator is legally responsible for proper use.

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