

Why Observe?

Each year, apple growers face the challenge of sudden freezing temperatures that can damage fragile blooms in the spring and ripening fruit in the fall. Knowing when apple varieties bloom and ripen at various locations can help fruit growers more easily select the best variety for fruit production at their orchard.

Montana State University, through funding provided by the Montana Department of Agriculture-Specialty Crop Block Grant is collaborating with USA-NPN to create an online apple phenology database. We are especially interested in the differences between apple varieties in the timing of apple flowering and ripe fruit.

You can help this project by monitoring your backyard or neighborhood apple tree, and reporting on when your trees bloom and produce ripe fruit via *Nature's Notebook*. Your data will help:

- Create a list of apple varieties best-suited for avoiding Montana's late spring frosts and producing fruit in the short growing season.
- Track how apple seasonal growth stages like flowering and ripe fruit vary across the state and region.
- Create a multipurpose database of apple bloom and ripening phenology that serves as a repository for future scientific endeavors.

If you know the name of your apple variety, please include that in the comments field when you register your tree.

Be aware there is variation from individual to individual within a species, so your plant may not look exactly like the one pictured. If you are uncertain whether or not a phenophase is occurring, report a "?" for its status until it becomes clear what you are observing after subsequent visits.



USU Extension IPM Program



Jinwook Lee

Malus spp.
apple



Photo credit: USU
Extension IPM Program

Breaking leaf buds

One or more breaking leaf buds are visible on the plant. A leaf bud is considered "breaking" once a green leaf tip is visible at the end of the bud, but before the first leaf from the bud has unfolded to expose the leaf stalk (petiole) or leaf base.



Photo credit: USU
Extension IPM Program

Increasing leaf size

A majority of leaves on the plant have not yet reached their full size and are still growing larger. Do not include new leaves that continue to emerge at the ends of elongating stems throughout the growing season.



Photo credit: USU
Extension IPM Program

Flowers or flower buds

One or more fresh open or unopened flowers or flower buds are visible on the plant. Include flower buds or inflorescences that are swelling or expanding, but do not include those that are tightly closed and not actively growing (dormant). Also do not include wilted or dried flowers.



Photo credit: USU
Extension IPM Program

Open flowers

One or more open, fresh flowers are visible on the plant. Flowers are considered "open" when the reproductive parts (male stamens or female pistils) are visible between or within unfolded or open flower parts (petals, floral tubes or sepals). Do not include wilted or dried flowers.



Photo credit: USU
Extension IPM Program

Fruits

One or more fruits are visible on the plant. For *Malus spp.*, the fruit is an apple that changes from green to its appropriate ripened species or varietal color (which may be green, yellow, pink, or red).



Photo credit: Jinwook
Lee, USDA-ARS

Ripe fruits

One or more ripe fruits are visible on the plant. For *Malus spp.*, a fruit is considered ripe when it has changed to its appropriate ripened species or varietal color (which may be green, yellow, pink, or red).

Phenophases not pictured: Leaves, Colored leaves, Falling leaves, Recent fruit or seed drop