

HAIL AND GARDENS

Storms can raise hail on gardens but the school of hard knocks has taught gardeners preventive measures

By Jennifer Thompson

Very little bumps out the average Wyoming gardener as much as the splat sound of very large raindrops hitting the earth followed quickly by the clunk, clunk, clunking and the sometimes thunderous roar of hail.

The damage to vegetable gardens often reduces the otherwise cheerful gardener to tears. All the care, water, and work invested in a vegetable garden can be pulverized in minutes.

Gardeners gazing at the now-pureed lettuce plants after a storm may think, "Dang! That's it! I'm going to do something about protecting my garden from hail!" For the less epic of these events, gardeners have developed a variety of ways to take some of the sting out of hail.

Protection Strategies

How do gardeners take preventative action? The main tactic is physical protection of the veggies. Raised beds or fenced areas are often easily protected using hoops (half circles made of PVC pipe or similar material) in raised beds. These structures allow a gardener to place a tarp or blanket over the hoops for temporary protection when hail is predicted (tarps and blankets can also be placed directly on the plants although they will squash the plants to some degree).

Others use a longer term cover over hoops – often a fabric row-cover, woven material – which allows sunlight in and excessive heat and moisture to escape, all while excluding insects and small diameter hail. An even hardier approach is to place wire mesh or screen over these hoops or other structures (such as small fences, tomato cages, frames built from PVC, etc.) to provide more permanent protection while allowing sunlight to penetrate. If you create one of these structures, keep in mind access to the plants for weeding, harvesting, etc.

Plants Provide Protection

Gardeners who live in areas where wind usually delivers hail at an angle use tall plantings, such as sunflowers or corn, on the upwind side of plants they want to protect. The tall plants provide some shelter when the hail arrives at such an angle. Others, such as Lorrain Rudd in Laramie County, use inter-planting to protect their more-valued or tender crops.

"I also do "companion planting" but my "companion planting" refers to what can protect what," says Rudd. "I pick plants that, if they get hit by hail, will recover easier (like broccoli). I have two cucumber plants growing amongst the corn. They are "vining" up the corn and getting protected by them simultaneously. I grow my



celery between a row of broccoli and potatoes. A recent hail event left my celery unscathed.”

Master Gardener Ideas

Other Master Gardener’s across the state had a wide variety of creative ideas for hail protection.

“We use Culligan water bottles with the bottoms cut out. They start out as mini-cold frames early in the season and become hail deflectors for plants that are caged. As the plant grows, we raise its bottle to the next “rung” of the cage,” says Michelle Bohanan of Laramie County.

Notes Jody Kruse from Campbell County: “You can use old clothes baskets and remay (a spun fiber cloth) to cover the plants in spring and take the remay out of it and keep moving the basket up stakes as the plant grows. This will protect it some from animals on the ground for a while and as it moves up, it will shade the things that need a bit of shade and protect from hail, too. Then you already have a form ready to cover in the fall to protect the plants from freezing.”

If looking for more permanent protection, hoop houses, greenhouses, and other structures can really provide significant protection; however, as mentioned previously, all bets are off when the hailstorm prompts a call to an insurance agent.

Hail, whenever it arrives, is a significant challenge to gardens across Wyoming. Implementing some of these tactics employed by clever and thoughtful gardeners can reduce the blow.

Many thanks to all the Master Gardeners across the state who shared their tactics for dealing with hail!



Lorrain Rudd grows squash and cucumbers vertically in tomato cages to help protect them from hail. The wire mesh helps provide additional protection while allowing in sunlight.

Jennifer Thompson watches for what Mother Nature tosses at Wyoming gardeners. She is the coordinator for the Small Acreage Issue Team with University of Wyoming Extension and can be reached at (307) 745-3698.

HOW HAIL

By Chris Jones

Hail forms when updrafts carry water droplets high into a cloud.

Sub-freezing temperatures in a cloud allow small ice pellets to form. The surface of these ice pellets collects additional water droplets as the hailstones fall and rise in the cloud.

The strength of the updraft, the amount of water in the storm, and how long the hail remains in the storm all determine how big the hail may grow. Eventually, the updraft can no longer support the weight of the stone, and the hail tumbles from the cloud toward the ground – and your garden!

Wyoming is a prime location for hail development. The Rockies and smaller mountain ranges are prone to afternoon cloud development. Daytime heating creates an unstable atmosphere, where warm air near the surface rises.



The National Weather Service (NWS) offices serving Wyoming issue daily hazardous weather outlooks accessed on the Internet (weather.gov). The NWS routinely uses Facebook, Twitter, and YouTube video weather briefings to provide information about strong-to-severe thunderstorms.



This mini-greenhouse-like structure in Christy Crochet's garden provides hail and wind protection and conserves some heat. The polycarbonate cover sustained no damage during a golf-ball-sized hail event last year.



Water wells help protect tender peppers in Lorrain Rudd's garden.

Mother Nature pelts some parts of state more than others

What are the odds of hail during the growing season, and if it's likely, what kind of hail does your area tend to get? If new to an area, chatting with other gardeners will quickly help determine your likely hail outlook. Some locations, such as the Laramie area, tend to get fairly frequent hail, but it tends (cross our fingers) to be smaller in diameter and often soft in structure. Other areas of the state such as Cheyenne can be walloped with truly tremendously sized hail.

FORMS

As thunderstorms roll off the mountains and onto the plains, valleys, and basins, storms may grow quickly in strength. This is why larger-sized hail usually falls on communities away from the foothills and mountains. The need for daytime heating to fuel thunderstorms means most hailstorms occur from early afternoon through mid-evening during the peak gardening months May-August.

The movement of moisture near the surface into Wyoming adds to or compounds an unstable atmosphere. Typically, this comes northwestward from the high plains of Kansas, Nebraska, and Colorado. The high barrier of the Rocky Mountains prevents this low-level moisture from moving west. Hail across Wyoming is most common east of the Rockies and especially along and east of the Interstate 25 corridor (see Figure 1). These trends are even more easily seen when considering the frequency of large hail (see Figure 2).

Wyoming's high elevation also means the freezing level in the cloud is usually closer to the surface than in a warm, tropical environment; for example, along the Gulf Coast. This means hail has a shorter distance to the ground and doesn't melt before reaching those prized tomatoes.

All these factors point to eastern Wyoming being prime ground for hail. Some 20th century research noted hail of any size was most frequent across southeastern Wyoming and northeastern Colorado. Hail can be expected about six days each year at any given location. Most other locations in Wyoming can anticipate two to four days of hail annually.

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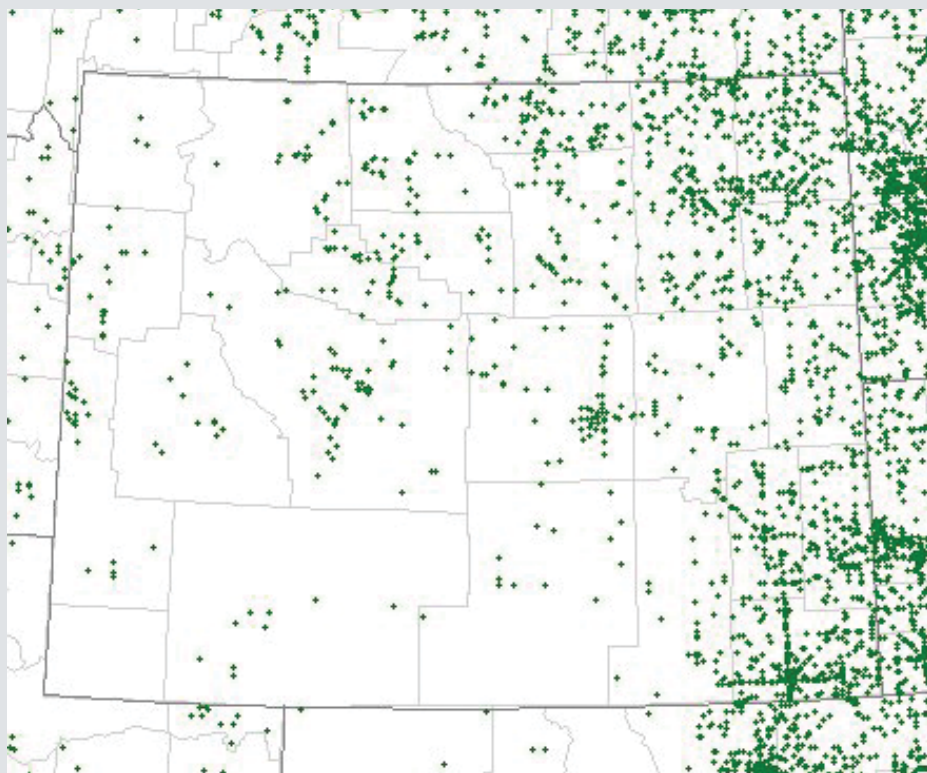


Figure 1. Hail reports 3/4" diameter or larger from 1983-2012. Note the greater frequency over northeastern and southeastern Wyoming.

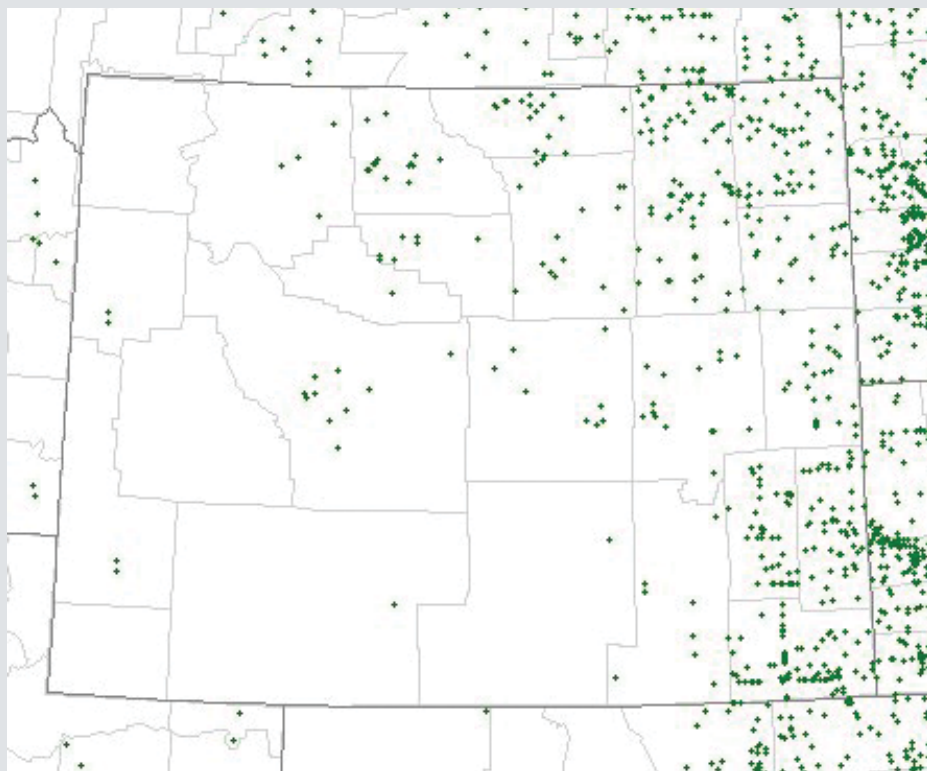


Figure 2. Hail reports 1.75" diameter or larger from 1983-2012. Note the lack of reports west of the Continental Divide in western Wyoming.