Giant Hogweed Eradication Program Finds No New Sightings

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HARRISBURG (Dauphin Co.) — A couple of weeks ago the state Department of Agriculture announced that a non-native plant a relative of the common wild carrot, had been added to the state's list of noxious weeds and that people who sighted the giant relative should report it to the department.

It had already been listed as a noxious weed by the federal government, and it is illegal to propogate, sell or transport.

The plant is called Giant Hogweed and it is in the same family of plant species as the wild carrot and parsley.

The purpose for reporting any sightings to the PDA is because the goal is to eradicate the species from Pennsylvania. The federal government is working with state officials to ensure its eradication from Pennsylvania.

While the description of the plant included in a news release was, and is, accurate, there are some native and naturalized relatives of the Giant Hogweed that can fall within the description provided.

According to PDA plant specialist Will Mountain, the plant most closely resembling Giant Hogweed is Cow Parsnip, though there are some differences.

Cow parsnip isn't rare, but it's not common either.

The Giant Hogweed is named that such because its dimensions are seemingly more in sync with the dimension of dinosaurs.

This week, after checking out a report of a suspicious plant in Lebanon County, Mountain provided more information on the Giant Hogweed, to allow better identification tools for Pennsylvania residents.

The plant Mountain inspected this week turned out to be Poison Hemlock — a member of the same family somewhat similar in appearance, except for the leaves.

Poison hemlock, the plant historically associated with the murder of Socrates, is not a native plant species either, but it is widespread.

(As a side note, Mountain noted that the central Pennsylvania poison control center has never reported any incidents of accidental poisoning from Poison Hemlock, despite its prevalance.)

Mountain said that since publicizing the eradication effort and the Hogweed hotline PDA plant specialists have been checking out reports and luckily have not verified any additional plants outside the northwest region of the state, where it has been discovered in Erie, Warren, Crawford, Venango, and McKean counties. (The hotline is good only for the northwest region. It is 1-877-464-9333. Others should contact a regional office, the state office in Harrisburg, or a local Penn State Extension office.)

However, Mountain said verifying that the suspected plant was not Giant Hogweed, but Poison Hemlock, was not a waste of time.

"It's important for us to check out any suspicious plants," Mountain said. "No one should feel bad if the plant isn't Giant Hogweed. That's good that it isn't."

The primary reason for the concerted effort to eradicate any specimens of Giant Hogweed from Pennsylvania is that it exudes a chemical that on human skin can cause severe blistering, pain, scarring, and permanent discoloration.

The poison is photo-responsive. The sap reacts in sunlight to cause blistering.

According to a Cornell University Cooperative Extension publication on the pest, "Giant hogweed might not be a weed worth trying to control were it not for its potential to cause severe skins irritations.

"The sap of the plant, which contains a glucoside called furanocoumarin, can cause painful, burning blisters in susceptible people. The plant juices also can produce painless red blotches that later develop into purplish or blackened scars.

"Simply touching the leaves of the weed does not produce this dematitis, which is known medically as phytophotodermatits.

"The blisters or blotches are likely to develop when sap from a broken portion of the plant comes into contact with the skin in the presence of moisture and the skin is then exposed to sunlight. The skin irritation usually appears within a few days after exposure."

The publication also states that, "The only known antidote is immediately to wash the skin thoroughly with soap and water."

Cornell University, which provides cooperative extension programs in New York state, is much more familiar with the plant, which was introduced into New York in the early 1900s as a garden exotic.

It grows from 6 feet to 14 feet high, has leaves up to 5 feet in length, and produces a flat-topped flower cluster (like Queen Anne's Lace) up to 30-inches in diameter.

The leaves of the smooth-skinned Poison Hemlock are finely divided like a carrot top, whereas the Hogweed leaves are compound, broader, and roughly divided, more like ragweed leaves. It has a rough, hairy skin.

The stems of the Giant Hogweed range from 2-inches to 4-inches in diameter, and the leaf stalks are blothed with deep purple, and the lower stems are ribbed.

A purposefully imported plant from Eurasia, specifically the Caucasus region, it became popular in English gardens to the point of being prominent in the English landscape by the 1970s, according to Cornell Extension.

It was introduced into New York and cultivated in Highland park in Rochester in 1917, according to the Extension publication.

"Although once cultivated as an unusual ornamental, Giant Hogweed is now regarded as an undesirable weed that poses a serious health threat because the sap of the plant causes a painful and acute skin irritation in many people," the literature states.

Mountain said some people are immune to its affects, much as some people are not affected by the sap of poison ivy, while others are extremely sensitive.

The size of Giant Hogweed gives it away, in addition to the distinguishing differences between Hogweed and Cow Parsnip (no purple on the plant, not as rough and hairy, grows to 8-foot height) and Angelica, another species in the family with similar leaves and structure (except the flower clusters are rounded and much smaller, the skin is purple, smooth and it has hairless stems).

PDA plant specialist Will Mountain stands next to a large specimen of poison hemlock that he investigated as part of the state's Giant Hogweed eradication program. While this is a tall specimen of a yet-to-flower poison hemlock, the Giant Hogweed grows from 8 to 14 feet tall.

Color brochures on the plant with information and symptoms of exposure are available from the state Department of Agriculture.

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CEILING INLETS AND ATTIC HEAT

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Within layer hen housing, increased air exchange is being used to remove bird body heat 6 to 7 cubic feet per minute (cfm) per bird is now common. Up to 9 cfm/bird is used in hot, southern states.

Building construction restrictions at the eaves, which inhibit bringing this large volume of air into the house, have led to inlet design changes.

Modifications such as ceiling inlets over each cage row may be criticized as being too costly, yet they do enhance fresh air movement at lower cage levels. At least one study has found that the ceiling inlet-ventilated houses had less temperature variation throughout the house than similar houses with only eave inlets. Producers need more information to evaluate when this additional cost may be justified and how it influences bird environment.

Normally poultry house attics are hot because of their exposure to solar load from uninsulated roofing material and limited air exchange. Air entering a caged layer house through the attic in ceiling inlet houses is often presumed to be at a significantly higher temperature than air entering at the eaves of a perimeter inlet house. Warm incoming air would lead to increased bird stress during hot summer conditions.

The counter argument, that both ceiling and perimeter eave inlets would have similar incoming air temperatures, is based on the limited heat gain which would be experienced when over half a million cubic feet of air per minute (cfm) is moved through the attic space during hot weather.

How much warmer is ceiling inlet air than perimeter inlet air? This was a question addressed through a Pennsylvania Egg Research Program funded study this past summer.

The study site had two conventional high-rise layer houses, one with perimeter eave inlets and the other with ceiling inlets over each cage row. The two houses were of similar construction, age, width (54 feet x 532 feet conventional and 54 feet x 616 feet ceiling inlet), pit conditions, and density of birds in stairstep cages. Exhaust fans were located in the pit sidewalls of each house.

The perimeter inlet house had six cage rows, three racks high, with 108,000 DeKalb birds, 31 weeks old at the start of the experiment. The ceiling inlet house had six cage rows, three racks high, with 125,000 Hy-Line birds (post molted), and 72 weeks old at the start.

Several temperature sensors were positioned within the attic space of each house. Outdoor air temperature sensors were positioned within the attic space of each house. Outdoor air temperature was represented by fresh air just as it was entering the building. Data was collected for 10 days during July 1998, with the three hottest days chosen for analysis.

In the conventional attic on the perimeter eave inlet house, the whole attic was hot on a hot day. One might expect the temperature at the peak to be much warmer because of temperature stratification, but there was only a 3°F difference between attic floor level and peak height. The attic was up to 20°F warmer than the outdoor temperature. That's hot on a 90°F day. Under cloudy conditions, this gain may be only 6° to 8°F.

In the ceiling inlet, it was clear that fresh air entered the attic space, traveled along the floor of the attic, and was drawn into one of the inlets, thus entering the hen house. The air in the upper part of the attic space was relatively undisturbed by the large amount of air flowing along the floor.

This data coincides with what we experience when we visit the attic in one of these houses. It may appear warm, and indeed at human head height, it is rather warm. But at ankle level, the airflow is at outdoor temperature. The air only picked up 1° to 2°F in traveling through the attic even during the hottest part of the hottest day we evaluated. In fact, there was less temperature variation across the attic than there was across the cage rows in these houses... but that is another article.

But let's look at the whole picture here. Heat gain from solar load on the attic space on both these buildings had to be very similar since they were next to each other with the same orientation to the sun. The ceiling inlet house attic temperature near the ridge was at a 100°F high at midday on the hottest study day. In the perimeter inlet house on the dame day and time, the maximum attic temperature was around 110°F. This 10°F attic temperature difference between the two houses had to go somewhere and it likely went into the ceiling inletted poultry house over the course of the day.

This heat then had to be removed from the hen house over the course of the day. Fortunately, the temperature of ceiling inlet air is not significantly warmer than perimeter inlet air during the hottest part of the day.

This data should alleviate concerns of significant heat stress on birds in ceiling inlet houses. The benefits of more effective air distribution found within the cage rows of some ceiling inlet houses may outweigh any slight temperature gain by replacing it with enhanced air speed over the birds. At the higher air exchange rate that we are demanding in current layer houses, bringing air in through the attic is better than trying to force it all through a restrictive perimeter eave inlet. The reduced radiant load on the birds from a cooler ceiling in the ceiling inlet house is another advantage.

With the high air exchange employed in layer houses, there is not much time for air to gain heat as it moves across the attic width toward the ceiling inlets.