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## 04-05-06 and the multicolored Asian lady beetle

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# 04-05-06 and the multicolored Asian lady beetle

## **Abstract**

On the first Wednesday of April, at a very early hour in the morning, the time and date were 01:02:03 04/05/06--a unique numerical alignment only to be experienced once during this century. Of course, I slept right through this fleeting, historical (and trivial) second. But later in the day, I was walking across campus at 1:02:03 in the afternoon and reflecting (but not too deeply) on the moment, and that if I didn't use military time (and I don't), then this experience should be just as valid at the nighttime numerical alignment. Viola! I had witnessed history, but I was soon distracted by insects.

## **Keywords**

Entomology

## **Disciplines**

Agricultural Science | Agriculture | Entomology



## Insects and Mites

### 04/05/06 and the multicolored Asian lady beetle

by Marlin E. Rice, Department of Entomology

On the first Wednesday of April, at a very early hour in the morning, the time and date were 01:02:03 04/05/06—a unique numerical alignment only to be experienced once during this century. Of course, I slept right through this fleeting, historical (and trivial) second. But later in the day, I was walking across campus at 1:02:03 in the afternoon and reflecting (but not too deeply) on the moment, and that if I didn't use military time (and I don't), then this experience should be just as valid at the nighttime numerical alignment. Viola! I had witnessed history, but I was soon distracted by insects. Buzzing back and forth in the sunshine and landing on people walking along the sidewalk were multicolored Asian lady beetles. The sight of the lady beetles combined with the numerical “thing” reminded me of a question that many farmers and crop specialists had asked during the last several years, “Have these lady beetles always been in Iowa, and if not, where did they come from?”

So I did some searching and found a great article that summarizes the biology and impacts of the multicolored Asian lady beetle. It was written by Robert Koch, University of Minnesota, and most of the information below comes from his article (<http://www.insectscience.org/3.32/>). Here are some facts that I found interesting.

**Name:** Multicolored Asian lady beetle, *Harmonia axyridis*. The common name was approved by the Entomological Society of America for use in their publications.

**Color:** Wing covers range from yellow-orange to red with zero to 19 black spots, or may be black with red spots.

**Original distribution:** China, Japan, Siberia.

**Life history:** Eating a diet of pea aphids at a constant 79 °F, the average duration of each stage was: egg 2.8 days, first instar 2.5 days, second instar 1.5 days, third instar 1.8 days, fourth instar 4.4 days, and pupa 4.5 days. Adults typically live 30 to 90 days, but they are recorded as living up to three years. Under laboratory conditions, females have produced 3,819 eggs at a rate of 25.1 eggs per day. However, another report gives the maximum fecundity as 1,642 eggs.

**Supercooling point:** -2 °F (temperature at which adults freeze and die).



A mass of multicolored Asian lady beetles preparing to hibernate for the winter. (Marlin E. Rice)

**Population dynamics:** Cannibalism plays a role in influencing the population. About 50 percent of eggs are eaten by larvae, while mortality within the fourth instar (93.3%) was the highest of all life stages, due to a food shortage after aphid populations crashed. Survival from egg to adult may range from 0 to 16 percent.

**Aphid consumption:** The total number of aphids consumed through the larval stages varied from 90 to 370 aphids, depending on the species, and across all larval stages averaged 23.3 aphids consumed per day. Adult consumption typically ranges from 15 to 65 aphids per day, again depending on aphid species.

**Defense:** Adults are aposematically colored (meaning their color serves as a warning) and when attacked, will secrete alkaloid-laden “blood” from their leg joints. This behavior is known as reflex bleeding. The “blood” is bitter to the taste (speaking from personal experience).

**Establishment in the United States:** This lady beetle was extensively released for biological control of other insects, beginning in 1916 in California. During 1978–1981, the beetle was additionally released by state and federal (USDA) agencies in several states along the Atlantic Coast and Gulf of Mexico. Accidental entries have arrived on nursery stock at ports in Delaware and South Carolina. The first extensive populations were not found in the United States until 1988 near the port of New Orleans, Louisiana. Therefore, it is not known for

certain whether the lady beetles' establishment in the United States was the result of accidental entries, planned releases, or both.

**Iowa status:** The multicolored Asian lady beetle was never released by Iowa State University in Iowa. The population we have is the result of the beetles probably flying here from Louisiana, or hitchhiking in a vehicle, although we will never know for sure how they arrived. They were first reported in Iowa in 1994. It is now a permanent, although sometimes unwanted, resident of our state. It is a known predator of the soybean aphid, and in that sense, it is a beneficial insect.

However, it has become a serious pest in Iowa vineyards—the alkaloids from a single beetle crushed in a cluster of grapes can ruin large quantities of juice, resulting in off-flavor wine. And if you live in a house in Iowa, you probably appreciate the nuisance factor of these little beetles during October when they defy all our efforts to keep them out and off our walls.

Insects and time—who can stop either one?

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*Marlin E. Rice is a professor of entomology with extension and research responsibilities in field and forage crops.*



## Announcements

### Second workshop offered on Horticulture Crop Production in High Tunnels

by Linda Naeve, Integrated Pest Management

In the past, planting season for many horticultural crops began in May to avoid the threat of frost; however, traditional planting times may change for some commercial growers as more producers use high tunnels to extend the growing season. High tunnels have become a popular and profitable method to produce high-value crops. They are simple, tall, plastic-covered structures used for the production of fruits and vegetables, cut flowers, and many other crops. They resemble greenhouses but cost less to erect and operate.

Growers interested in seeing horticultural crops growing under high tunnels and learning more about their maintenance and crop management should plan to attend a workshop at the Iowa State University Armstrong Research and Demonstration Farm near Lewis, Iowa, on June 21, 2006. Workshop participants will be able to tour a newly constructed high tunnel planted with tomatoes, blackberries, and red raspberries, as well as see other horticultural plantings at the farm. Speakers include Henry Taber, Extension vegetable specialist, and Paul Domoto, Extension fruit specialist. Maury Wills, from the Iowa Department of Agriculture, will discuss organic certification.

The workshop, sponsored by Iowa State University Extension and the Wallace Foundation for Rural Research and Development, begins with registration at 4:30 p.m. followed by an "All-Iowa" dinner at 5 p.m. and the program. The cost is \$15 per person. Preregistration is required. For more information, go to [www.extension.aiastate.edu/PME](http://www.extension.aiastate.edu/PME), call your local county ISU Extension office, or contact me at 515-294-8946.



**Above—Tomato production under a high tunnel in mid-summer, 2005.**

**Right—Thanks to the efforts of the farm staff, volunteers, and a little break in the weather, the plastic was placed over the high tunnel at ISU**

**Armstrong Research and Demonstration Farm on April 8. Tomatoes, red raspberries, and blackberries will be planted under the high tunnel in mid-April. (Bernie Havlovic)**



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*Linda Naeve is an extension program specialist in the Integrated Pest Management program at Iowa State University.*