

Figure 1. Joro spider left and the spiney orb web weaver right. See story below



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**Our Goal** - We believe we, humanity, stand at a pivotal moment in history of agriculture and humanity. Over the past 44 years The Happy Berry has been building a bridge to carry us into the future. The bridge is the perennialization of agriculture to provide food and fiber needs for the world as sustainable and resilient ecosystems. Our goal is to be a living example for other farmers (ecosystem managers) as well as economically viable, socially acceptable and environmentally friendly. For example, we have plans that reach 250 years in to the future. Part of that plan integrates trees like Italian Stone pine (produces pine nuts with a typical life span of 250 years) into our diversity plan. The pine tree provides frost protection by reflecting heat back into berry bushes, the mycorrhizal associates bring up water nutrients from deep in the soil profile to the berry bushes, the shade they provide reduces high temperatures as much as 10 degrees through evapotranspiration and the falling needles each year provides a recalcitrant mulch on the soil surface to increase water penetration and water holding capacity and provide food for micro and macro fauna. The next time you are at The Happy Berry look how the blueberry bushes are hugging the pine trees.

**Peak-of-season in the persimmons.** This relatively unknown fruit to the south eastern United states is famous on a worldwide basis. They have been grown in Asia for thousands of years. They are sweet, seedless, and non-astringent. They will not Pucker your mouth, a common comment by those who are familiar with native persimmons

found in the wild. The fruit is climacteric meaning it will continue to ripen after being picked like a banana or peach. Apples, muscadine, and strawberries are an example of non-climacteric fruits. Being climacteric adds versatility to its use from eating like an apple, or cut up as addition to salads, to being used as a glaze on chicken or pork chop.

Persimmons are rich in nutrients and is associated with so many health benefits that are too good to be ignored. They prevent tumors, reduces cancer risks, lowers cholesterol, low in calories, high in fiber, high in vitamins A and C, high in flavonoid antioxidants and reduce inflammation.

Many of our first persimmon trees died. Our investigation into what was the cause lead us to learn that it is bacterial disease (now called sudden wilt) that is vectored by the 'Sharp Shooter' family of insects sometimes called squirrel bugs, because of their habit to dodge behind a branch, like a squirrel, when approached. Further investigation indicated squirrel bugs, omnivorous feeders, do not like plants treated with a plant pharmaceutical called imidacloprid even at extremely low doses. It is sold as a granular 0.05 % product called 'Criterion.' Applied very early in the year, late March and early April just before bud break, on the ground to grass and weeds, common symptomless hosts for the bacterium, prevents squirrel bugs from acquiring the bacterium and because they don't like it they leave the host before effective transmission of the bacterium. It takes several hours of feeding before successful transmission.

**Fall chores** – *Weed management* – Weeds are actually “good guys” fixing carbon from the air with their roots and tops, same contributes to the duff/mulch which protects the ground from erosion, Increases water percolation and water holding capacity, and contributes holding nutrients where they are to the perennial crop. At the same time perennial weeds like trees in the wrong place, sweet briars, horse nettle, Virginia creeper, and kudzu compete for sunshine, water etc... for these a systemic herbicide, and a paint brush and paint the stems of individual plants. Really difficult the first time but gets better each year. Raspberry Crown Borer in the blackberries is treated in the fall as far away from harvest as possible with an insecticide, Grape Root Borer is treated with pheromones if we can get it. *Infrastructure repair* – Fall is the time when we repair all those things we did not have time for during harvest. *Planting* to update or change varieties and to add new crops to the further diversity. *Nutrient Management* – soil tests, liming adding phosphorous and potassium to systems that are short in these nutrients,

**Conservation Easement** – Well after two years it looks like it is finally going to happen. Farm land protects urban water; farm land protects natural systems for the community mitigating development impacts of erosion, sediment, flooding and pollution; rewilding with wild life highways, invasive species removal and providing pocket forests. Farm land benefits include enhancing biodiversity, saving species, improving microclimate for

the community by reducing air pollution and the heat island effect of urban development. Farm land provides food for the government or the economy “go south.” Farms provide local recreation in our case pick your own food. Conserving the farm protects the farm from local property taxes. Conserving the farm will provide income to enable increasing sustainability and resilience of the farm. The Happy Berry will become an LLC. Transfer of deeds happens 10-27 and the closing on perhaps the 10<sup>th</sup> of November.

**New invasive species of Spider spotted at Farm** – Joro spider has been found at The Happy Berry October 22, 2023 by Paul McJunkin. Since discovery we have found a second one another. Both have been destroyed. The Joro spider, pictured at the top of this newsletter, has a life cycle of one year. Lays approximately 400 eggs at maturity. Its food is other spiders like the Spiny Orb Web Weaver(SOWW), also pictured at the top. It has as many as 10 generations a year and is considered a good guy. His distinct webs can be as frequent as every 10 feet as you progress down between rows. His food possibly includes pest adult fruit worms, cranberry and cherry moths, spotted wing drosophila, mosquitos, blueberry maggot, and any others that fly into its web. The Problem is the Joro Spider is a predator of Orb spiders and therefore represents a threat to The Happy Berry ecosystem that may require more use of plant pharmaceuticals. Both spiders are not venomous and are harm less to humans.

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