

Two Onion Farm

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NEWS RELEASE

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Wisconsin Orchardists Grow Organic Apples in High Tunnels

BELMONT, Wisconsin – Organic apples are popular with consumers, but most organic apples on grocery store shelves are grown in dry regions of Washington state. Organic apples are difficult to grow in the Midwest because spring and summer rains promote diseases which are difficult to control using organic methods. These fungal and bacterial diseases damage leaves, defoliate trees, and blemish fruit.

One way to control diseases is to grow crops under cover, in plastic-covered “high tunnels” (unheated greenhouses). The clear plastic film over the tunnels blocks rainfall, keeping foliage dry and preventing disease. Inside the tunnel, drip irrigation supplies water to plant roots. High tunnels are commonly used to grow vegetables, berries, and flowers in Wisconsin. Apple growers Chris and Juli McGuire received a USDA-SARE Farmer Rancher grant to try raising dwarf apple trees in high tunnels on their Lafayette County, Wisconsin farm.

The McGuires raise 2 acres of organic apples outdoors, as well as other fruits. They’re able to control keep diseases in check outdoors by growing disease-resistant varieties, pruning their trees well, and using organically-approved sprays when needed, but they were interested in trying tunnels as an alternative. “Disease-resistant apple varieties such as Liberty or Enterprise can tolerate our humid climate without suffering disease” says Chris McGuire, “but they are not always the varieties which consumers are seeking. The organically-approved sprays are only partly effective and they are expensive and time-consuming to apply. We have several high tunnels on our farm which we previously used for growing vegetables and we were seeking another use for the tunnels now that we no longer grow vegetables for sale.”

The McGuire planted seven varieties of dwarf trees on trellises inside their tunnel in spring of 2019. The trees grew vigorously, quickly reached their full size, and produced a crop in 2020 and 2021. As expected, the trees have been virtually free of disease, although the tunnels do not significantly deter insect pests. The biggest problem they’ve encountered is sunburned, soft, and off-flavored fruit caused by the high temperatures inside the tunnel – even though the tunnels are ventilated they’re consistently warmer than outdoors. Chris McGuire reports, “Looking at our numbers, it would be difficult to recoup the cost of constructing the tunnels by growing apples in them. The varieties we trialed varied a good deal in yield and heat tolerance, and it would be essential to plant high-yielding, heat-tolerant varieties.” It’s also important to cover the tunnels in winter with an opaque plastic (silage tarp works well). “Without an opaque cover,” says McGuire, “temperatures inside the tunnel could soar into the 50’s or 60’s on a sunny winter day, and then crash below zero at night – those extreme daily fluctuations will damage the trees.”

The McGuires have shared their results with other farmers through the internet and conference presentations. They’ve received calls and emails from others interested in their findings. “We’re really glad that this information is useful to other local growers looking to produce organic apples,” says Chris McGuire. They’ve shared a full report of their project, including a detailed description of their growing methods, costs, and yields online at www.twoonionfarm.com/research.

