

# UNH Scientists Successfully Grow Onions Overwintered in Low Tunnels

**NHAES Project in Response to High Demand for Year-Round Produce**

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*UNH RESEARCH ASSISTANT KAITLYN ORDE HARVESTS ONIONS. LOW TUNNELS WERE INSTALLED OVER THE PLANTS IN LATE FALL. ONIONS WERE HARVESTED FROM MID-APRIL TO EARLY JUNE 2012 AND LATE MAY TO EARLY JULY 2013.*

In response to high demand for year-round local produce, researchers with the University of New Hampshire report they have successfully grown bulbing onions planted in fall for a spring harvest with the aid of inexpensive low tunnels.

The new research, which was funded by the [NH Agricultural Experiment Station \(NHAES\)](#) and by [Northeast SARE \(Sustainable Agriculture Research & Education\)](#), may provide additional marketing opportunities for growers in cold climates who have been trying to meet the demands for fresh, year-round, locally grown produce.



*Inside these icy low tunnels are hundreds of onion plants, tucked in for the winter.* “Direct-market sales are the primary outlet for growers in our region, and these off-season onions would likely be sold individually at sizes determined by local market preferences,” the researchers said.

NHAES faculty researcher Becky Sideman, extension professor of sustainable horticulture production at UNH, and her colleagues with the University of Massachusetts-Amherst, University of Massachusetts Extension, and UNH Cooperative Extension, present their research findings in the December 2014 issue of *HortTechnology* in the article “Production of Bulbing Onion Overwintered in New Hampshire with Protection by Low Tunnels.” “Direct-market sales are the primary outlet for growers in our region, and these off-season onions would likely be sold individually at sizes determined by local market preferences,” the researchers said.

Sideman and her colleagues evaluated the survival, bolting, and bulbing of several cultivars of fall-planted onion in two sites in New Hampshire over two growing seasons. Plants were seeded in August and September, and transplanted in September and October into raised beds covered with black plastic mulch. Low tunnels were installed over the plants in late fall. Onions were harvested from mid-April to early June 2012 and late May to early July 2013.

The researchers found that all onion cultivars showed high percentages of survival, between 65 and 100 percent. Cultivar, planting date, and the interaction between the two had a significant effect on the percentage of bolting and bulb diameter at harvest. In general, those planted later exhibited lower percentages of bolting and slightly smaller bulbs at harvest.



*Cultivar selection plays a critical role in successful overwintering of onion production systems in cold climates. The T420 onion was one that survived the winter and did not bolt, producing a marketable bulb.*

They also concluded that cultivar selection plays a critical role in successful overwintering of onion production systems in cold climates. All plants that survived the winter and did not bolt produced a marketable bulb. In particular, for Bridger, T420, Top-Keeper, and Keepsake yellow cultivars, 85 to 100 percent of the plants met these criteria, which corresponds to a potential yield of 37,000 to 43,500 bulbs per acre.

“While this is considerably lower than expected yields for major onion production regions, these yields may be commercially viable in a high-value, direct-market situation,” the researchers said. They also concluded that cultivar selection plays a critical role in successful overwintering of onion production systems in cold climates. All

plants that survived the winter and did not bolt produced a marketable bulb. In particular, for Bridger, T420, Top-Keeper, and Keepsake yellow cultivars, 85 to 100 percent of the plants met these criteria, which corresponds to a potential yield of 37,000 to 43,500 bulbs per acre.

Additional information is available

at [https://extension.unh.edu/resources/files/Resource005477\\_Rep7652.pdf](https://extension.unh.edu/resources/files/Resource005477_Rep7652.pdf).

*Founded in 1887, the [NH Agricultural Experiment Station](#) at the [UNH College of Life Sciences and Agriculture](#) is UNH's original research center and an elemental component of New Hampshire's land-grant university heritage and mission. We steward federal and state funding to provide unbiased and objective research concerning diverse aspects of sustainable agriculture and foods, aquaculture, forest management, and related wildlife, natural resources and rural community topics. We maintain the [Woodman](#) and [Kingman](#) agronomy and horticultural farms, the [Macfarlane Greenhouses](#), the [Fairchild Dairy Teaching and Research Center](#), and the [Organic Dairy Research Farm](#). Additional properties also provide forage, forests and woodlands in direct support to research, teaching, and outreach.*

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## NH AGRICULTURAL EXPERIMENT STATION



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