

Research shows importance of proper soil moisture for wild blueberries

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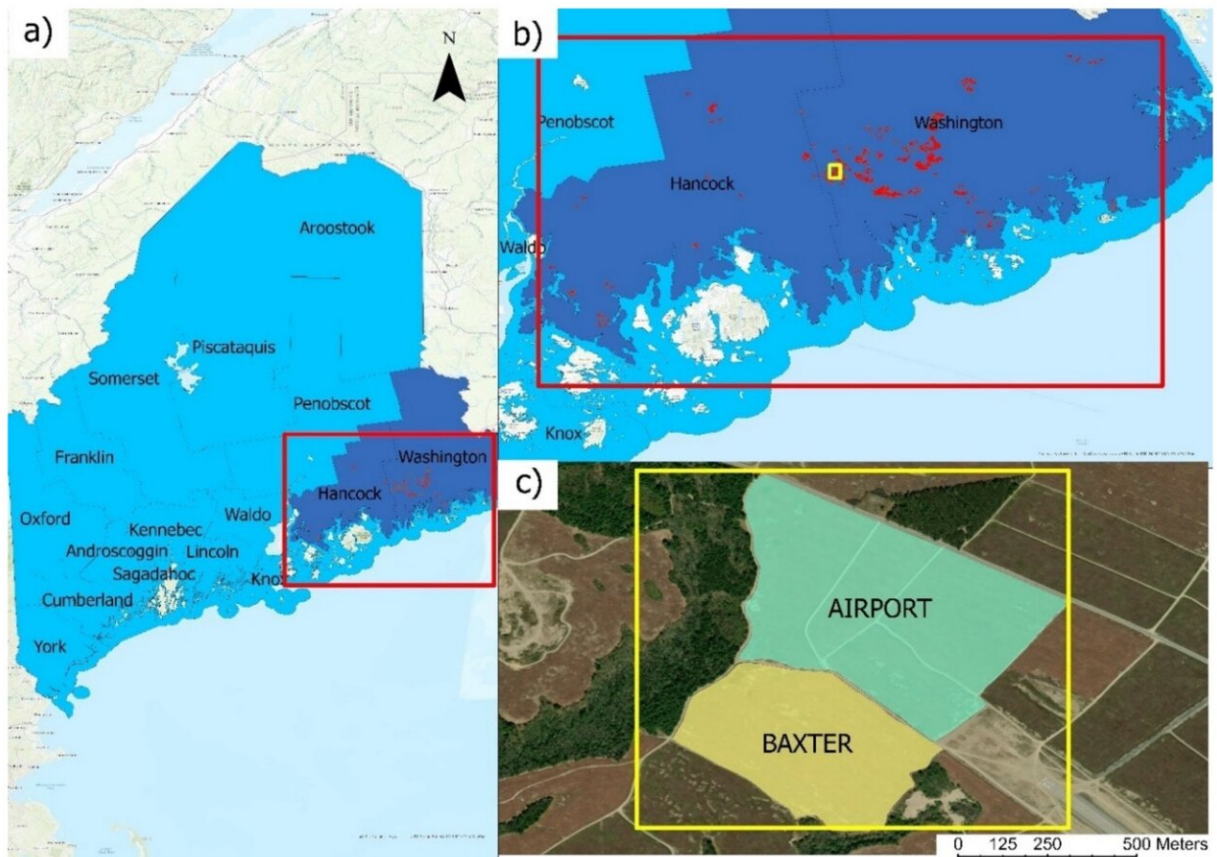


Figure 1. Location of the study sites: (a) a map of the state of Maine (light blue color), USA showing the location of the major wild blueberry production region (Washington and Hancock County) in dark blue color; (b) a map of the major wild blueberry production region in Maine showing 89 wild blueberry fields in red polygons for this study with an area of 0.06 km² (250 m × 250 m) or larger; (c) Airport and Baxter wild blueberry fields of Wyman's in Deblois, Washington County, ME, USA. Credit: DOI: 10.3390/cli9120178

Wild blueberries are one of Maine's most iconic and important native cash crops. New research shows that to help wild blueberries thrive in all sorts of conditions, proper soil moisture management is even more essential than previously thought—especially over the long term.

According to a UMaine study conducted in collaboration with the Milbridge-based wild blueberry company Jasper Wyman & Son, wild blueberries, which are regarded as a relatively drought-tolerant crop, are more sensitive to dry [water conditions](#) over a long period of time. The study, published in the journal *Climate*, highlights the importance of effective plant water management, especially as the warming climate is predicted to dry out Maine's soil.

The study looked at changes in monthly drought conditions for 89 wild blueberry fields in Maine's Washington and Hancock counties over a period of 71 years. The researchers looked at how changes in drought related to the health of wild blueberry vegetation in the same areas over a period of 21 years, from 2000 to 2020, which were measured using satellite-based remotely sensed data from Google Earth Engine. Researchers also analyzed how water conditions affected wild blueberry yield using data from the U.S. Department of Agriculture and Jasper Wyman & Son.

The results showed that drought has not significantly increased in these areas over the past seven decades, but the areas are warming quickly and, as a result, the moisture of the soil is expected to decrease in the future due to increasing evaporation and crop water loss. Although the study did not investigate precipitation frequency, it did show that long-term water conditions were more likely to affect wild blueberry crops' vigor and yield than short-term conditions. It also showed that drought conditions affected fields that weren't irrigated more than ones that

were.

"Wild blueberry fields should be well prepared and introduced to effective irrigation management systems to mitigate the impacts of projected future warming conditions." says Kallol Barai, a master's student in the School of Biology and Ecology who led the study.

Maintaining the right amount of water in the soil in wild blueberry fields is tricky, though, as the soil doesn't uniformly hold moisture even within the same field. As such, the researchers emphasized the importance of precision irrigation systems—which use technology to schedule and target watering at just the right time and place—in wild blueberry fields as a way to efficiently and effectively manage the crop's water needs.

"By adopting precision agriculture, wild [blueberry](#) fields can be divided into management zones that each receives customized management inputs. Precision irrigation [management](#) requires regular monitoring of crop water stress to forecast crop water needs in real-time. To do that, future research should be focused on developing efficient [water](#) stress monitoring techniques specifically for wild blueberries," Barai says.

More information: Kallol Barai et al, Is Drought Increasing in Maine and Hurting Wild Blueberry Production?, *Climate* (2021). [DOI: 10.3390/cli9120178](#)

Provided by University of Maine

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