Factsheet Climate vs. Beer – KV8 S2/E2

Welcome to the chamber of climate-horror stories! A victim of climate change that has barely been noticed so far: hops, and with them, beer. Under Bavaria's purity law of 1516, beer may contain only barley, hops and water – making hops the only "spice" that gives beer its characteristic note.[1]

Hops contain alpha acids, which determine the bitter taste and keep the head of foam stable. These are exactly the compounds suffering from global heating. A long-term study from Germany, Czechia and Slovenia shows: as temperatures rise and droughts worsen, hop yields and alpha-acid content decline.[2]

Luckily, solutions are being researched. Breeders already offer more climate-resilient varieties, though they taste different. And a start-up in Galicia grows hops entirely in greenhouses – hydroponically, with efficient LED lighting and far lower water use.[3] Whether and how quickly such changes take hold across Germany's hop acreage of around 19,000 hectares remains to be seen. It will take a while in any case.[4]

The drought, however, is already being felt today. In the 2026 harvest review, Germany's grain yield fell by around 3 million tonnes; sugar beet, potatoes and wine are also threatened by heat and drought.[5] The same goes for coffee and chocolate, which keep getting more expensive. Researchers warn that harvests of sensitive treats can hardly be made predictable even with geoengineering, and that they could become luxury goods.[6]

No surprise there: June and July 2026 were hotter in Western Europe than ever since weather records began.[7] The climate crisis is changing our staples and our pleasures. So here is our proposal: let's fight climate change itself – and not only its consequences. After all: save the climate, save our beer.

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1 Historisches Lexikon Bayerns: Beer purity law ("Reinheitsgebot"), 1516 (decreed in Ingolstadt, 23 April 1516). https://www.historisches-lexikon-bayerns.de/Lexikon/Reinheitsgebot,_1516

2 Možný, M. et al. (2023): Climate-induced decline in the quality and quantity of European hops calls for immediate adaptation measures. Nature Communications 14, 6028. https://doi.org/10.1038/s41467-023-41474-5

3 Reuters (2023): Spanish start-up grows hydroponic hops to help „save" climate-threatened beer; The Guardian (2023): Spanish startup on mission to save planet's beer. https://www.reuters.com/business/environment/spanish-start-up-grows-hydroponic-hops-help-save-climate-threatened-beer-2023-04-12

4 BarthHaas (2025): Hop report 2025/2026 – Germany's acreage 18,962 ha; BLE (2025): 2024 hop harvest on 20,289 ha. https://www.barthhaas.com/de/unternehmen/news/news-artikel/bh/barthhaas-bericht-2025-2026-zur-hopfenernte-2025

5 Deutscher Bauernverband (2026): Harvest review 2026 – 41.9m t of grain, about 3.3m t less than 2025; Federal Statistical Office (2026): first estimate 37.4m t (−7.3%). https://www.bauernverband.de/pressemitteilungen/bauernverband-erntebilanz-2026-48670

6 Morrison, A. L., Barnes, E. A., Hurrell, J. W., Hueholt, D. M. (2025): Macroclimate growing conditions for luxury crops after stratospheric aerosol injection. Environmental Research Letters 20, 114063. https://doi.org/10.1088/1748-9326/adfbff

7 Copernicus Climate Change Service (2026): European summer 2026 – records, extremes and context; June and July 2026 were the warmest in Western Europe on record. https://climate.copernicus.eu/european-summer-2026-records-extremes-and-context