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Report on the Soil Steam Experiment: 2024; Bohemian Knotweed

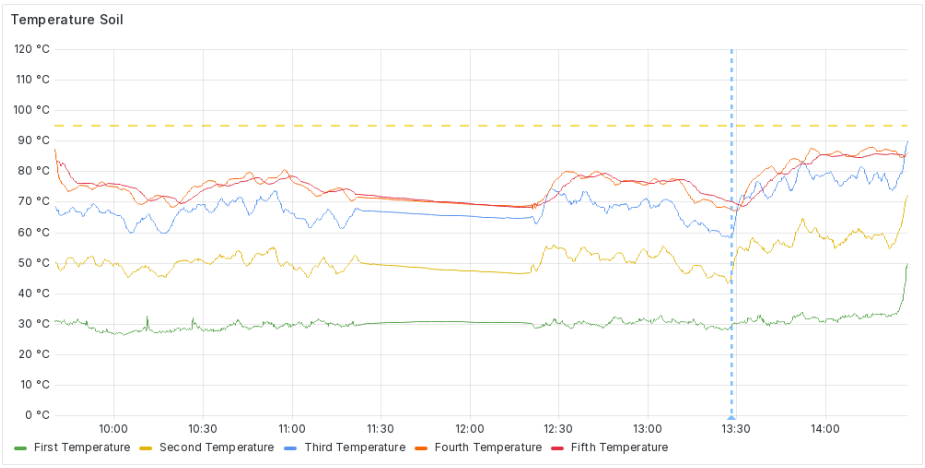
Introduction

This report outlines the findings of an experiment conducted in 2024 to assess the impact of large-scale soil steaming on the survival of Knotweed.

Methodology

Experimental Design

The experiments were conducted using a mobile steam production unit named "SoilSaver 20." The tests focused only on *Knotweed. Rhizomes were put in bags which was sent into the machine together with soil masses.* The soil samples were subjected to steam 70 °C with a fixed exposure time of 12-16 minutes. This means that the soil is first heated up to desired temperature for 6-8 minutes and kept at that temperature for another 6-8 minutes. Following steaming, the samples were allowed to cool naturally in bulk for the next 12-16 hours



Picture 1: The Knotweed soil was steamed between 11.30 and 12.15 and the temperature was stabile around 70 C.

1. **Germination and Survival Tests**:
    - The plant material was planted in pots filled with P-soil from Tjerbo, immediately after steaming.
    - The greenhouse conditions were set to 20 °C with 18 hours of light, and no system was used for controlling relative humidity.
    - The duration of the cultivation period was at least six weeks.

Picture 2,3 and 4: Rizomes were placed in bags for washing clothes, closed and branded. The bags were left in the pile while cooling down and taken out the day after (12-14 hours later). Finally both control and steamed rizomes were planted in pots and brought to the greenhouse.

Results

Germination and Survival

- **Bohemian Knotweed:**
    - Control showed growth of 2-13 sprouts while no shoots emerged from steamed propagules at only 70C, indicating the treatment's effectiveness in preventing propagation.

Pot trials and survival of vegetative reproductive rizomes of Japanese Knotweed

Plant	Treatment	Pot number	# of sprouts					Final number of sprouts
Japanese Knotweed	Control	1	12	13	13	12	12	13
		2	2	2	2	2	1	2
		3	3	3	3	2	2	3
	Steam treated 70 °C	1	0					0
		2	0					0

1 month after steaming (01.07.24?)

Regrowth per 15.08.24 – 2 rounds of pruning

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Conclusion

The experiment demonstrated that steam treatment is very effective in killing *Knotweed*. However, the effectiveness varies by species and temperature, with higher temperatures generally reducing germination rates more effectively. In this case we found 70 C was warm enough to avoid any regrowth in the Knotweed.

This report encapsulates the key findings and insights derived from the 2024 soil steaming experiments. It highlights the potential of steam as a tool for Knotweed management.

Place/ Date: Drammen 06.09.2024

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