



Eva Crane Trust

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Beekeeping round the World

Effects of a volcanic eruption

Mount St. Helens, near the Pacific seaboard of the USA, erupted on 18 May 1980. The loss of human life, and the large-scale effects of the eruption, immediately became world news, but here we give some first-hand reports about the effects on bees, from beekeepers in the area. They are taken from *The speedy bee* 9(5) : 12-14 (1980)

Mount St. Helens is in the Cascade Range that runs parallel to the Pacific Coast, in Washington State. Immediately to the east lies the Yakima valley, an important fruit-growing and beekeeping area. The ash mostly fell to the east of the volcano; Yakima itself was covered with a layer about an inch (2.5 cm) thick, but in the Upper Columbia Basin farther east the ash was 3-5 inches thick, and much finer.

Reports about the bees during the eruption varied. Mr. and Mrs. Longanecker, Secretary of the Washington State BKA, reported: The sky had the appearance of a heavy thunderstorm as the cloud of ash appeared. The bees 'came home' as if bad weather was in the offing. The sky got 'darker than any night'—'like being in a cave'. Later in the day, after the sky had lightened, the bees were ill-tempered. Near Richland (where the Yakima river joins the Columbia, and 240 km from the volcano) Mr. Ivan Whidden heard a series of explosions while he was inspecting an apiary of 216 colonies, but did not then know their origin. The bees were then most unusually gentle. When the cloud of ash came over the bees behaved as at nightfall, and only later on in the day did they become 'nervous and mean'.

There is no news on close-up effects of lava or mud; it was ash, falling from above over a wide area, that caused most of the trouble reported. Effects of the ash differed in different areas, depending on its characteristics. In general the coarse ash fell nearer the eruption and the fine ash (grains smaller than $1\text{ }\mu\text{m}$) farther away.

All ash is heavy, and it damaged crops through its sheer weight (200-450 tonnes per hectare) as well as by blanketing the plants off from the air. In some places rain helped to wash the ash off, but elsewhere it caked the resultant mud into something like cement. Everywhere, the dry ash could blow to new areas, and lying ash sealed the surface of the soil so that water could not penetrate normally. Many beekeepers in Washington State depend on alfalfa for a honey crop, and they may get a bonus if the alfalfa is left to flower instead of being harvested, because the adhering ash makes it unpalatable to livestock.

The immediate effect of the ash on bees was not unlike a moderate pesticide kill, according to the Longaneckers. There was an immediate kill of foraging bees, from direct ash contact. The cause of death, whether from abrasiveness of the ash, dryness, or suffocation, is still under investigation. Colonies then began to suffer. Some were heavily dependent on foragers for immediate sustenance, and these began to die. Brood was dragged out of some hives, whether due to death from lack of food or from contamination by ash is open to conjecture.

Dr. C. A. Johanson, beekeeping specialist in the State, said that the field force was killed in colonies even at Pullman, where only half an inch of ash fell. His best estimate is that the bees suffocated in the dust. Some brood was killed too. With no major nectar flows on, it was not possible to predict whether the ash would show up in honey. Where there had been rain, dandelions soon started to come up through the ash.

The immediate rescue operation consisted in taking colonies to ash-free areas, and these existed to the north and east, and west of the Cascades. But one difficulty was the abrasive choking action of the ash on machinery, so that vehicles were put out of action.

The estimated immediate loss of bees in eastern Washington is 12 000 heavily damaged colonies out of 70 000 and the others damaged in varying degrees. Only time will tell what long-term effects are produced by the eruption.