

# **John Lawes' Rothamsted Fertilizer Experiment and Liebig's Polemics. (S04-vanderploeg075750-Oral)**

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## **Abstract:**

In 1826 Carl Sprengel disproved the humus theory and in 1828 he published his theory on the mineral nutrition of plants. Sprengel's work, however, did not cause a revolution in crop production, mainly because of the lack of mineral fertilizers and of unambiguous fertilizer experiments. Also Justus Liebig, who was convinced of the correctness of Sprengel's theory when he published his epochal book in 1840, did not have results from field experiments that showed convincingly the correctness of this theory. It is therefore not surprising that the humus theory still was widely accepted in the 1840s and 1850s, long after the first appearance of Liebig's renowned publication. The first systematic and comprehensive fertilizer experiments, both with manure and mineral fertilizers, were carried out by John Lawes at Rothamsted in the United Kingdom, between 1844 and 1850. In his seven-year long field experiment with wheat, Lawes found that the field that was fertilized with manure produced the highest yields. The fields that received mineral fertilizers, however, hardly showed any response. Lawes' results seemed to contradict Sprengel's theory on the mineral nutrition of plants as well as Liebig's views on the uselessness of fertilizing field crops with nitrogen. In his famous 1855 publication Liebig bluffed that Lawes had done the proper experiments, but that he had drawn the wrong conclusions. Nevertheless, because of his authority, Liebig was able to convince many scholars of the correctness of Sprengel's theory. His 1855 publication can therefore be considered as the breakthrough of the Sprengel theory. In our contribution Lawes' experiments and Liebig's arguments will be presented.

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