

Ozone as a Soil Fumigant

Goal: This project continues to demonstrate the efficacy of on-site generated gaseous ozone for soil treatment of a variety of commercially important California crops that are subject to soil borne pathogen disease and nematodes.

Technology Path: The project paths include: 1) field site selection, securing grower participation, site preparation, planting, and crop harvesting; 2) field demonstration and laboratory experimental design; 3) ozone application, sampling, and analysis; and 4) crop yield comparison of ozone fumigated with other pesticides and control field plots.

Results of this project will provide California farmers with real-time field data for assessing the benefits of ozone as a replacement fumigant for methyl bromide in their crop applications.

At the completion of this project, SoilZone (technology developer) expects the technology to be ready for commercialization on a limited basis initially, to be marketed to small growers of high value crops. To further explore interest from larger growers, SoilZone recommends the construction of a large-scale (250 lbs/day) mobile ozonation unit, as compared to the existing 14 lbs/day unit.

Energy Efficiency Benefits: This research will develop energy efficient ozone application practices to reduce on-farm ozone production requirements. Other energy benefits result from eliminating of energy consumed to manufacture, transport, apply, and dispose of methyl bromide or other chemical replacements. Ozone is the only known soil fumigant that can be generated at the point of use with no wastage or disposal concerns, thus addressing environmental problems.

Technical Objectives:

- Continue to test the commercial efficacy of onsite generated gaseous ozone soil treatment in increasing production in a variety of important California crops subject to soil-borne pathogen pressures.
- Crops will include strawberries, cole crops, row crops, and many types of vine and orchard plantings and re-plantings.
- The project will solve the problem of finding an environmentally benign, functional, and cost effective replacement of methyl bromide for this application upon its scheduled phase-out.

Economic Objectives:

Achieve sufficient energy and other production-cost savings to reach a positive return on investment for the proposed ozone system. as a replacement for other fumigants.

Principal Investigator:

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