Reduction of Crop Injury from Herbicide Carryover with Suståne Natural Organic Fertilizer as Compared to Activated Charcoal

Dr. Brent Philbrook, Agri-Growth Research
Report Summary of Nursery Field Study and Greenhouse Study

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Background: Pesticide residues can wreak havoc on newly established crops for both conventional growers as well as farmers who are making the transition to organic production. The only current alternative to reducing plant injury from persistent herbicides is activated charcoal – applied to absorb various chemicals compounds in the soil.

Field Study: Suståne was tested in a field study at Bailey nursery on soil contaminated with from 20-200 lb per acre atrazine. Sorghum Sudangrass was established as a buffer crop before three liners were transplanted. 9 contaminated plots were split into treatments of either activated charcoal or Suståne.

Greenhouse Study: A greenhouse study was initiated on November 1, 1989 to determine the ability of Suståne to provide crop protection from herbicide carryover injury as compared to a Gro-Safe commercial activated charcoal treatment. The study was designed as a split plot with five herbicide carryover groups as main plots and four crop protectants as sub-plots. The treatments were replicated three times. The herbicide groups were an untreated control (UTC), Atrazine (representative of triazines), Treflan (representative of dinitroanilines), Scepter (representative of imidazolinones), and Glean (representative of sulfonylureas). The crop protectants (also referred to as crop safeners) were UTC, Suståne at 1000 lb./A (1X), Suståne at 5000 lb./A (5X), and Gro-Safe at 100 lb./A. **Kentucky bluegrass, bentgrass, soybean, oats, sweet corn** and **field corn** were planted in rows in 10 by 21 inch flats as experimental units. Percent crop injury was rated against the UTC/UTC, and crop vigor was rated against the UTC/Greatest vigor treatment for each respective crop species and replicate. Visual ratings were assessed at 2, 4, and 7 weeks after plants (WAP). All data were subjected to the appropriate analysis of variance, and Fisher's Protected Least Significant Difference Test (LSD) at 5% lever was used for mean separation.

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Conclusions:

1. Suståne in many cases effectively reduced observed seedling damage from simulated herbicide carryover at 2 to 7 WAP.

2. Often Gro-Safe was suspected of binding crop nutrients results in live but unthrifty crops.

3. Suståne promotes greater recovery capacity of injured crop plants after initial survival.

4. For the herbicide groups that often include root injury, Suståne resulted in enhanced crop vigor over the commercial Gro-Safe protectant.

5. Suståne demonstrated contributions to crop protection from herbicide carryover injury via enhanced plant vigor.