

Strategies to Enhance Preemergence Herbicide Performance in Citrus

Researchers: Ramdas Kanissery,
Robert Riefer

Contact: Ramdas Kanissery,
rkanissery@ufl.edu

UF/IFAS SWFREC



Flumioxazin + soil binding agent
~3 months after application



Flumioxazin ONLY
~3 months after application

Take Home Message:

- Preemergence herbicides are essential for keeping weeds under control in citrus groves throughout the year.
- To effectively prevent weed germination and growth, these herbicides must stay in the upper layer of soil.
- Mixing soil-binding agents with preemergence herbicides improves their effectiveness in sandy soils by helping them stay in the soil for longer periods.

Effort Statement: We conducted the study again during multiple seasons.

Summary: Preemergence herbicides, also known as residual herbicides, are highly effective in the long-term suppression of weeds in citrus tree

rows. These herbicides remain in the soil and prevent susceptible weeds from germinating. In order to achieve the best weed control results, the preemergence herbicides need to stay within approximately the top five inches of soil, where they can effectively suppress the germination of weed seeds. However, Florida's citrus soils have a high sand content, which causes the herbicide's active ingredients to leach more rapidly from the topsoil. This leads to a reduction in the herbicide's performance. To tackle this problem, a project was conducted to assess the potential of adjuvants called "soil binding agents" or "soil deposition agents" in enhancing the retention and effectiveness of preemergence herbicides in the sandy soils of Florida. One such herbicide

tested was flumioxazin, which is commonly known as Chateau®. It was combined with a soil-binding agent called polyvinyl polymer (Trade name: Hydrovant® fA). The mixture, consisting of 8 oz/acre of the herbicide and 0.1% v/v of the soil binding agent, was applied to the citrus tree rows, and its weed control effectiveness was compared to using the herbicide alone. The results of the experiment showed that the combination of the preemergence herbicide and the deposition agent improved overall weed control efficacy compared to using the herbicide alone. These findings indicate that incorporating these adjuvants has the potential to enhance the effectiveness of preemergence herbicides in controlling weeds in citrus groves.

Funding:

UF | IFAS
UNIVERSITY of FLORIDA