

HERBICIDE LABEL UPDATE FOR VEGETABLE CROPS

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While herbicide development in vegetable crops has been limited in recent years, a few products have been registered on several minor crops, including halosulfuron (Sanda[®]) and sulfentrazone (Spartan[®]). Research is underway to further expand the use of these herbicides in additional crops.

Halosulfuron is a sulfonylurea herbicide that controls weeds by inhibiting the acetolactate synthase (ALS) enzyme. This enzyme is responsible for the production of essential amino acids. Other common ALS-inhibitor herbicides include Accent[®], Matrix[®], Classic[®], Beacon[®], Raptor[®], and Pursuit[®]. Recent registrations on the Federal Section 3 label include asparagus, cucumbers and melons, pumpkins and squash, dry and snap beans, tomatoes, eggplants and peppers. Halosulfuron controls weeds when applied prior to emergence or early-postemergence, depending on the target species. The weed control spectrum is rather broad, and includes common broadleaf weeds such as cocklebur, galinsoga, common groundsel, marestail, jimsonweed, kochia, ladythumb smartweed, common lambsquarters, and wild mustard. In recent research, common ragweed control has been good when halosulfuron was applied early postemergence. Halosulfuron is also one of the only herbicides that will suppress horsetail (*Equisetum* spp.) when applied postemergence.

While the broad spectrum of residual weed control offered by halosulfuron is very advantageous, users should keep in mind that residual herbicides can sometimes have lengthy rotational restrictions for future cropping plans. Current rotational restrictions after halosulfuron application for common Wisconsin crops range from 1 to 36 months. Also, the long-term use of ALS-inhibitor herbicides, including halosulfuron, should be carefully managed to reduce the risk of herbicide resistance. Weed resistance to ALS-inhibitors has been observed in 93 species worldwide. In Wisconsin, resistance to this mode of action has been reported in black nightshade, common waterhemp, giant foxtail, green foxtail, and kochia.

Sulfentrazone is a protoporphyrinogen oxidase (PPO) inhibitor. Other PPO-inhibitor herbicides include Aim[®], Goal[®], Cobra[®], and Blazer[®]. The PPO enzyme is required for the formation of chlorophyll, and when blocked, results in the buildup of highly reactive compounds that destroy cell membranes. Current crop registrations include soybean, processing cabbage, potato, horseradish, dry peas, and mint. Sulfentrazone may have a fit and future registration in more minor crops. This herbicide is taken up from soil solution by germinating seeds and seedlings. The use rate is determined by crop and soil type. Soils high in organic matter or clay adsorb sulfentrazone so that it is not readily available for plant uptake, and low soil pH reduces availability. The weed control spectrum includes several common broadleaf and grass weeds, such as pigweed species, galinsoga, jimsonweed, kochia, ladythumb and Pennsylvania smartweed, common lambsquarters, black nightshade, common purslane, shepherdspurse, and waterhemp species. Sulfentrazone will partially control several other weeds, including hairy nightshade, cocklebur, velvetleaf, and several grass species (when combined with an appropriate grass herbicide). As with halosulfuron, careful long-term crop planning is important when using sulfentrazone. Rotational restrictions for commonly-grown crops are up to 36 months. As always, pesticide labels change frequently. Please consult the current label for updates prior to use.

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