

## INHIBITORS OF ACETOLACTATE SYNTHETASE

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ALS inhibitors belong to a group of herbicides that work by specifically targeting the ALS enzyme in plants, while they have no effect on the same enzyme in humans and animals. This selectivity is a key feature that minimizes the potential environmental and health risks associated with herbicide use. When ALS inhibitors are applied to an area with weeds, they are absorbed through the leaves and roots of the plant. Once in the plant, these herbicides interfere with the ability of ALS to catalyze amino acid biosynthesis, leading to disruption of the plant's integrity. The plant becomes weak, unable to produce protein and eventually dies. ALS inhibitors have a high degree of selectivity for weeds, which makes them a valuable preparation in integrated weed management. They allow farmers to control weeds without harming crops. ALS inhibitors are effective against numerous types of weeds, including broadleaf and grass weeds, making them versatile in different crops. Their selective mode of action reduces the likelihood of off-target effects, thereby reducing the impact of herbicide application on the environment. While ALS inhibitors offer several advantages, there are also challenges and concerns with their use: Overreliance on ALS inhibitors can lead to the development of herbicide-resistant weed populations. Appropriate management strategies, including herbicide rotation and diversification are essential to mitigate this risk. Some ALS inhibitors can persist in the environment, potentially leading to undesirable effects, such as damage to beneficial plants and aquatic ecosystems. Despite their selectivity, ALS inhibitors should be handled carefully to minimize human exposure and potential health risks. Today, ALS inhibitors have become a valuable and modern tool in 21st century agriculture and are used for effective weed management.

**Key words:** ALS inhibitors, herbicide, weeds