

**Development of a Novel Herbicide, Benzobicyclon + Halosulfuron, (BUTTE®), for California Rice Production.** James R. Brazzle\*<sup>1</sup>, N. Alonso<sup>1</sup>, K. Holmes<sup>2</sup>, A. Takahashi<sup>3</sup>. <sup>1</sup>Gowan USA, <sup>2</sup>Gowan Company, <sup>3</sup>SDS Biotech K.K. [\\*jbrazzle@gowanco.com](mailto:*jbrazzle@gowanco.com)

Benzobicyclon + halosulfuron, BUTTE® herbicide, is currently under development by Gowan Company & SDS Biotech K.K. for use in the California rice market. Beginning in 2008 thru 2015, field and laboratory studies have been conducted to evaluate crop safety, weed spectrum, use rates and guidelines, and fit in resistance management and integrated weed management programs in California.

At a use rate of 101 - 121 gm ai/A of benzobicyclon + 21 – 26 gm ai/A of halosulfuron, BUTTE herbicide provides excellent sedge and select broadleaf weed control. Strong activity on grasses requires more refined application timing. BUTTE has shown greater activity against sprangletop (*Leptochloa* spp.) versus watergrass (*Echinochloa* spp.). Several resistant weed species have been tested under field and laboratory conditions highlighting the benefits of benzobicyclon's novel mode of action. In crop safety studies rates over 242 gm ai/A have shown a high degree of selectivity as measured in rice stand, growth & crop yield. Multiple varieties at several stages of crop growth have been tested. In 2013-2015, larger scale aerial application studies were conducted to confirm and compliment results observed in smaller scale studies.

BUTTE herbicide fits well into the water seeded production system employed in California. This new mode of action potentially provides rice growers a novel tool to combat the growing resistant weed patterns observed in California. Overall BUTTE has a strong fit as a foundation herbicide in California's integrated weed and resistance management programs.