

New Herbicides and Plant Growth Regulators Announced at the Brighton Conference

The most recent British Crop Protection Council annual conference, commonly known as the Brighton Conference, was held November 12-15, 2001. The emphasis this year was weeds. The session in which new crop protection compounds are introduced is usually among those with the highest attendance since the Brighton Conference is traditionally the venue at which crop protection product companies first introduce new products that will be brought to market. While performance in Europe is emphasized, plans for marketing crop protection products in North America are often disclosed. Following are the herbicides and plant growth regulators that were announced this year.

Azopirillum brasilense. A representative from Eco Soil Systems, Inc., San Diego, CA, reported on the results of a series of field trials in southern California in which an application of *Azopirillum brasilense* was found to increase root mass of creeping bentgrass (*Agrostis palustris*), perennial ryegrass (*Lolium perenne*), and tall fescue (*Festuca arundinacea*). Treatments included a microbial stimulant, Lex, also from Eco Soil Systems, Inc. The presentation did not include any details about plans to take commercial advantage of this information.

Pethoxamid. Tokuyama Corporation, Japan, introduced pethoxamid for grass and broadleaf weed control in corn and soybeans. The presenter emphasized that the compound is in the acetamide chemical family, not the acetanilide chemical family. It appears to inhibit the biosynthesis of fatty acids. The data and information presented came from work conducted in Europe; no mention was made of work conducted in North America. Pethoxamid can be applied PRE or early POST in corn, and PRE only in soybeans at rates of 1.2 kg ai/ha (1.0 lb ai/A). Grass weeds controlled include barnyardgrass (*Echinochloa crus-galli*), large crabgrass (*Digitaria sanguinalis*), and a foxtail species (*Setaria geniculata*); while, broadleaf weeds controlled include redroot pigweed (*Amaranthus retroflexus*), common lambsquarters (*Chenopodium album*), field bindweed (*Convolvulus arvensis*), black nightshade (*Solanum nigrum*), and ladythumb (*Polygonum persicaria*).

Trifloxysulfuron-sodium. Syngenta Crop Protection will sell trifloxysulfuron-sodium as a stand-alone product for POST broadleaf weed control in cotton (trade name Enfield); and alone or as a pre-mix with ametryn (trade name Krismat) for weed control in sugarcane. It inhibits acetolactase synthase. In cotton the use rate will be 5.0 to 7.5 g ai/ha (0.004 to 0.007 lb ai/A) applied POST, and 10 to 15 g ai/ha (0.009 to 0.013 lb ai/A) applied POST-directed to the weeds. Weeds controlled at 5.0 to 7.5 g ai/ha (0.004 to 0.007 lb ai/A) included common ragweed (*Ambrosia artemisiifolia*), sicklepod species (*Senna* spp.), common lambsquarters (*Chenopodium album*), wild poinsettia (*Euphorbia heterophylla*), morningglory species (*Ipomoea* spp.), and common cocklebur (*Xanthium strumarium*). Rates of 10 to 15 g ai/ha (0.009 to 0.013 lb ai/A) were needed for control of pigweed species (*Amaranthus* spp.) and yellow nutsedge (*Cyperus esculentus*). Syngenta is targeting trifloxysulfuron-sodium as a "key

herbicide for cotton." In sugarcane, the use rate will be 37 g ai/ha (0.03 lb ai/A), and it will be applied POST to planted or ratoon sugarcane. The authors mentioned that it might also be developed for weed control in plantations (tropical) and turf. No mention was made of its use as a methyl bromide alternative for weed control in tomato and possibly pepper.

Foramsulfuron. Foramsulfuron is an acetolactase synthase-inhibiting herbicide from Aventis CropScience for the POST control of grass and some broadleaf weeds in corn. Applied alone, foramsulfuron controls barnyardgrass (*Echinochloa crus-galli*), foxtail species (*Setaria* spp.), quackgrass (*Elytrigia repens*), crabgrass species (*Digitaria* spp.), Panicum species (*Panicum* spp.), and johnsongrass (*Sorghum halepense*). When combined with iodosulfuron-methyl-sodium, the broadleaf weed spectrum is increased to include common lambsquarters (*Chenopodium album*), morningglory species (*Ipomoea* spp.), common cocklebur (*Xanthium strumarium*), and smartweed species (*Polygonum* spp.). Alone, foramsulfuron will be used at 30 to 60 g ai/ha (0.03 to 0.05 lb ai/A). When pre-mixed with iodosulfuron-methyl-sodium, the rate of foramsulfuron will be 30 to 45 g ai/ha (0.03 to 0.04 lb ai/A) and the rate of iodosulfuron-methyl-sodium will be 1 to 2 g ai/ha (0.0009 to 0.0018 lb ai/A). Applied alone or as a premix, the foramsulfuron formulation will also include the safener isoxadifen-ethyl, at a ratio of 1:1. Isoxadifen-ethyl reduces the level of parent foramsulfuron that is translocated in corn. Crops sensitive to foramsulfuron plus isoxadifen-ethyl plus iodosulfuron-sodium-methyl include potatoes, cereals, oilseed rape, sugar beets, sunflower, soybean, cucumber, and tomato. The presenter reported that many crops can be safely planted into treated soil three months after application; however, a list of crops evaluated was not provided.

Mesosulfuron-methyl. Mesosulfuron-methyl (trade name Mesomaxx) will be marketed by Aventis CropScience for POST control of grass and some broadleaf weeds in wheat (winter, spring, and durum), triticale, and rye. It inhibits acetolactase synthase. It will be packaged with a safener, mefenapyr-methyl, which increases metabolism of mesosulfuron-methyl in tolerant plants. Even with the safener, barley (winter and spring) tolerance has not been consistently acceptable. Use rates of mesosulfuron-methyl will be 15 g ai/ha (0.013 lb ai/A), with the safener at 45 g ai/ha (0.040 lb ai/A). The safener does not appear to have an adverse effect on susceptible weed species. Species controlled include grass weed species important in small grain production in Europe such as blackgrass (*Alopecurus myosuroides*), windgrass (*Apera spica-venti*), ryegrass species (*Lolium* spp.), *Phalaris* spp., and bluegrass species (*Poa* spp.). Broadleaf weeds controlled include those in the *Brassica* family such as volunteer oilseed rape. Crops evaluated for rotational safety included sugar beet (12-13 months), and peas and field beans (12-14 months). Other crops safety planted 12-14 months after application includes artichoke, corn (maize), potatoes, soybeans, sunflowers, and tomatoes. The authors did not indicate if any of these crops had been evaluated for crop safety at shorter intervals.

Article by Fred Salzman