Maysin has potential to control corn earworm

ATLANTA, Ga. — A U.S. Department of Agriculture geneticist reported today that maysin, a compound found in small amounts in corn, has the potential to retard the growth and development of the corn earworm, the insect pest that destroyed 140 million bushels of corn last year.

Speaking at the American Society of Agronomy meeting here, Neil W. Widstrom with USDA's Agricultural Research Service, said that "crosses between certain corns which yield plants with high maysin content may help to provide a basis for developing hybrids with levels of maysin that cause reductions in earworm population."

"Even though silks of different corns vary greatly in their relative maysin content, some exceeding others by ten times or more, the variability suggests that selection for increased levels of this growth retarding factor can be expected to be effective," he said.

However, he cautioned that estimates of genetic variation indicate that about one-half of the existing variation is of a type not easily utilized in a system of recurring selection. "This merely means," he added, "that a simple type of inheritance does not appear to be the most probable type controlling the level of maysin in corn silks."

Widstrom, headquartered at the ARS Southern Grain Insects Research Laboratory in Tifton, Ga., worked with entomologists Billy R. Wiseman and William W. McMillian, also of the laboratory, and Western Regional Research Center chemists Carl A. Elliger and Anthony C. Waiss, Jr., of Berkeley, Calif.

Potassium affects alfalfa's protein content

ATLANTA, Ga. — The nutrient element potassium is critical to maximum yields of alfalfa. An Ohio study over the past 3 years has revealed that potassium deficiency not only reduces the total yield of alfalfa, but may also affect the nutritive value of the forage.

A. L. Barta, research agronomist at the Ohio Agricultural Research and Development Center, Wooster, reported results of his studies during the annual meeting of the American Society of Agronomy.

Barta said that his experiments showed that potassium affects the ability of alfalfa roots to utilize nitrogen from the air. This has a direct effect on protein content, the major reason alfalfa is such a valuable feedstuff for livestock (especially dairy cattle).

The Ohio studies showed that potassium deficiency significantly reduced both the rate of regrowth of alfalfa after harvest and the rate of nitrogen fixation. It is believed that the rate of nitrogen fixation is limited by the supply of sugars produced by photosynthesis in the leaves and transported to the nodules on the roots.

Barta reported that potassium appeared to stimulate the movement of the sugars produced in the shoot to the roots where they are utilized by Rhizobium bacteria in the nodules to increase nitrogen fixation. The stimulation was most obvious during regrowth of alfalfa after cutting.

Barta said the research emphasized the importance of maintaining adequate levels of potassium in the soil for high alfalfa yields. He emphasized that annual alfalfa production of 10 tons per acre requires more than 400 pounds of potassium. Farmers who depend on alfalfa for high-protein feed should make certain soil fertility is adequate by testing the soil and applying potassium and other elements that may be in short supply.