14. Herbicide Tolerant Sweet Corn

In 2000, Wisconsin sweet corn growers produced 1.15 billion pounds on 95000 acres with a value of $38 million for processing. In the last decade, sweet corn production in Wisconsin has declined by 45%. Groundwater protection regulations limiting or prohibiting use of the herbicide atrazine, the susceptibility of sweet corn to injury from some herbicides, and the appearance in sweet corn fields of weeds with resistance to other herbicides have resulted in a limited number of herbicides, with limited efficacy, registered for use on sweet corn in Wisconsin. Production has become less stable and food-processing companies in the state have closed or now purchase sweet corn from states which do not restrict atrazine use.

Sweet corn plants are particularly poor competitors with weeds because of their limited root system and poor late season canopy. Herbicides are applied to 97% of the sweet corn acreage in Wisconsin, but the occurrence of herbicide-resistant weeds, both broadleaf and grass, and the limitations on the use of available herbicides, cause an estimated 20% annual yield loss on approximately one third of the state's acres (30,000).

Glufosinate is a nonselective herbicide effective against a wide range of broadleaf and grass weeds. A gene for glufosinate resistance, originally obtained from a bacterium, was used to transform corn cells, and the resultant plants withstood treatments with glufosinate. Research has demonstrated that two applications of glufosinate would provide effective control of the troublesome weed species in Wisconsin sweet corn. Glufosinate is not currently registered for use on sweet corn, although Wisconsin was granted use on transgenic sweet corn through an emergency registration granted by EPA in 1999. Based on the transgenic cultivars currently available, a glufosinate-based weed management program could be implemented on approximately 30,000 acres of sweet corn in the state, preventing the current 20% yield loss to weed competition on those acres.

Potential Impacts of Herbicide Tolerant Transgenic Sweet Corn

<table>
<thead>
<tr>
<th>Change in Production:</th>
<th>72 million pounds per year increase</th>
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</thead>
<tbody>
<tr>
<td>Change in Income:</td>
<td>$1 million/ yr. increase</td>
</tr>
<tr>
<td>Changes in Pesticide Use:</td>
<td>16,200 pound per year increase in herbicide use</td>
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