Sugarbeets respond to metolachlor and dimethenamid. Sugarbeets are tolerant to postemergence applications of metolachlor or dimethenamid if sugarbeets have reached the two leaf stage. Research was conducted in 2000 at four sites in Michigan to determine sugar beet response to preplant incorporated (PPI) and preemergence (PRE) applications of metolachlor (Dual II Magnum) and dimethenamid (Outlook). These herbicides were applied alone or in combination with ethofumesate (Nortron), pyrazon (Pyramin), or ethofumesate plus pyrazon. All application rates were based on soil type. Dimethenamid PPI was more injurious to sugarbeet than dimethenamid PRE at all four sites. Dimethenamid PPI was more injurious to sugarbeet than metolachlor PPI at all four sites. Sugarbeet injury from PPI and PRE metolachlor was not statistically different at each of the four sites. Dimethenamid PRE was more injurious to sugarbeet than metolachlor PRE at only one of four sites. Adding ethofumesate plus pyrazon PRE to metolachlor or dimethenamid PRE increased sugarbeet injury compared to metolachlor or dimethenamid alone at 2 of 4 sites. Furthermore, pyrazon plus either dimethenamid or metolachlor PRE was more injurious to sugarbeet than either dimethenamid or metolachlor alone at one site.