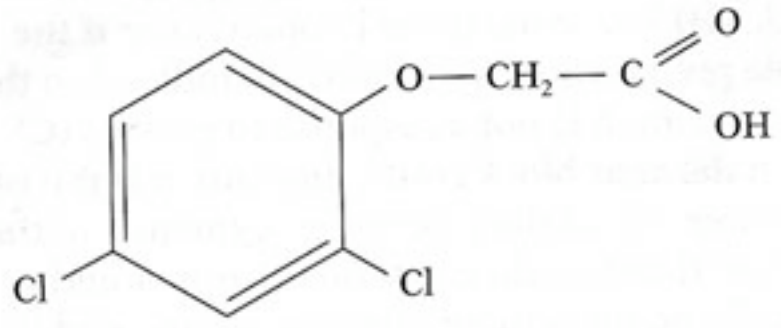
SYNTHETIC AUXINS ARE USED AS WEED KILLERS

A widely used modern weed killer, or herbicide, is 2,4-D (2,4-dichlorophenoxyacetic acid). This synthetic chemical has many of the properties of auxins. Artificial auxinlike chemicals have been used in vast quantities since the 1940s for the control of dandelions and other broad-leaved weeds. Because they are selective in their action and, when used in proper concentrations, will not kill grasses or related monocots, they are of enormous commercial value in combating broad-leaved (i.e., dicot) weeds in lawns, pastures, and fields of corn, wheat, oats, and rice. How these herbicides kill only *certain* weeds is not known, but the selectivity of these compounds against broad-leaf weeds is due in part to the greater absorption and rates of transport of the herbicides by broad leaf weeds than by grasses. They kill plant by stimulating rapid, uncoordinated, and distorted growth of some body parts while seriously inhibiting the functioning of other parts. The exact manner in which these results are produced is not understood.

Effect of 2,4-D on a dandelion.



Structure of 2,4-D.

Considerable attention has been given to Agent Orange, the herbicide most commonly used as a defoliant during the Vietnam conflict. Agent Orange is a derivative of 2,4-D and 2,4,5-T (2,4,5-trichlorophenoxyacetic acid), another synthetic auxin. It also contains dioxin, a contaminant of 2,4,5-T that has been showed to be toxic to experimental animals and to humans. In humans dioxin causes skin lesions on the head and upper body, and is also probably carcinogenic. 2,4,5-T is no longer produced or used in the United States.