

PLANT LIFE IN YEAR 2000 THREATENED by EXHAUST

By Dr. R. A. Wood

The major problem by the year 2000, as far as plant life is concerned, may be caused by chemical reactions created when motor vehicle exhaust ingredients are exposed to sunlight.

Sunlight triggers a chemical reaction among exhaust mixtures and creates air pollutants called photochemicals. Compounds originating from industrial sources may also react in this manner.

Such photochemicals pollutants will increase three-fold by the year 2000, caused by gases developing mainly from hydrocarbons and oxides of nitrogen. By the year of 2000 over 87 million pounds of hydrocarbons and oxides of nitrogen will be emitted into the atmosphere annually from motor vehicles alone.

Ironically, if all motor vehicles were powered by batteries, the increased electricity needed to charge the batteries would at least double the present air pollution from coal-burning generators used to make electricity. In short, one form of air pollution could replace another.

The damage to trees and other vegetation from photochemicals can be more severe than with most other air pollutants, he states. The most serious air pollutants now injuring trees and other vegetation are sulfur dioxide, fluoride, ozone, and a gas known as PAN (peroxyacetylnitrate). The latter two are photochemical air pollutants. Fluorides are increasing in the atmosphere, and are the most toxic to plants of all air pollutants. Fluorides originate from impurities in raw materials used to make aluminum, steel, oil, brick, and pottery—as well as from rocket fuel combustion.

Ozone, one of the most harmful photochemical air pollutants to plants, originates in polluted atmospheres. Oxides of nitrogen, emitted into the atmosphere by motor vehicles and a variety of industries and utilities, react in the presence of sunlight and oxygen to form ozone. PAN, another photochemical air pollutant harmful to the plants, results from similar reactions between hydrocarbons and oxides of nitrogen.

BEST BEEF CATTLE GAINS BOTH RAPID AND EFFICIENT

By Lowell L. Wilson

Beef cattle with the genetic ability to gain rapidly also have the ability to gain efficiently.

Sixty per cent of the differences in weight gain within a group of cattle fed in the same feedlot are due to genetics. A progeny test is the "acid test" of a beef bull's true ability to produce fast-gaining, meaty, quality calves. In progeny testing, a bull to be evaluated is bred to a random group of cows. Then the live and carcass qualities of the bull's calves are assessed.

He averaged the results of numerous research trials at Penn State and other universities and found that one-tenth pound-per-day increase in a beef cattle herd's ability for rate of gain could save 35 pounds of feed for each 100 pounds of weight added in the feedlot.

Such superior cattle can mean a saving of \$6,420 for feed, interest, labor, and other feedlot costs for 1,000 head.

Studies by other Agricultural Experiment Station scientists at Penn State have found that the carcass traits of cattle, the meatiness of the rib eye area and the eat-ability of meat, are at least as highly heritable as weight gains.

Certain other factors are

not as strongly determined by inheritance as carcass traits and post-weaning weights. For example, weaning weight is only 30 per cent heritable while live conformation is 35 per cent heritable.

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