

CHAPTER 7
INFLUENCE OF ADDING ALCOHOL
TO GASOLINE

Since August 1978, it has been the official policy of the Government to add alcohol to gasoline, to reduce the consumption of imported fuel. To evaluate the effect of this mixture on fuel consumption, experiment FC-1 was partially repeated with the VW-1300, Kombi and F-400 gasoline truck, this time using as fuel a mixture of 20% alcohol and 80% gasoline. The factors and levels considered in this experiment are presented in Table 7.1.

TABLE 7.1 - FACTORS AND LEVELS OF EXPERIMENT FCS-6

FACTORS	LEVELS
Cargo	Empty, Loaded
Grade	0, 4, 6%
Direction of Grade	Positive, Negative
Type of Surfacing	Paved, Unpaved
Type of Fuel	Pure Gasoline, Alcohol/Gasoline Mixture

The analysis of variance of the data generated by this experiment showed an insignificantly small difference in consumption between the two types of fuel. The volume of fuel consumed under the same conditions was slightly higher for the mixture of alcohol and gasoline.

Figures 7.1, 7.2 and 7.3 show the dispersion of the consumption data for the three vehicles studied (car, utility and light gasoline truck) around the straight line of equality. The results of the analysis of variance show insignificant differences in the consumption of both types of fuel by the three vehicles tested. This indicates that any adjustment in the equations is unnecessary since it would not perceptibly increase their present level of precision.

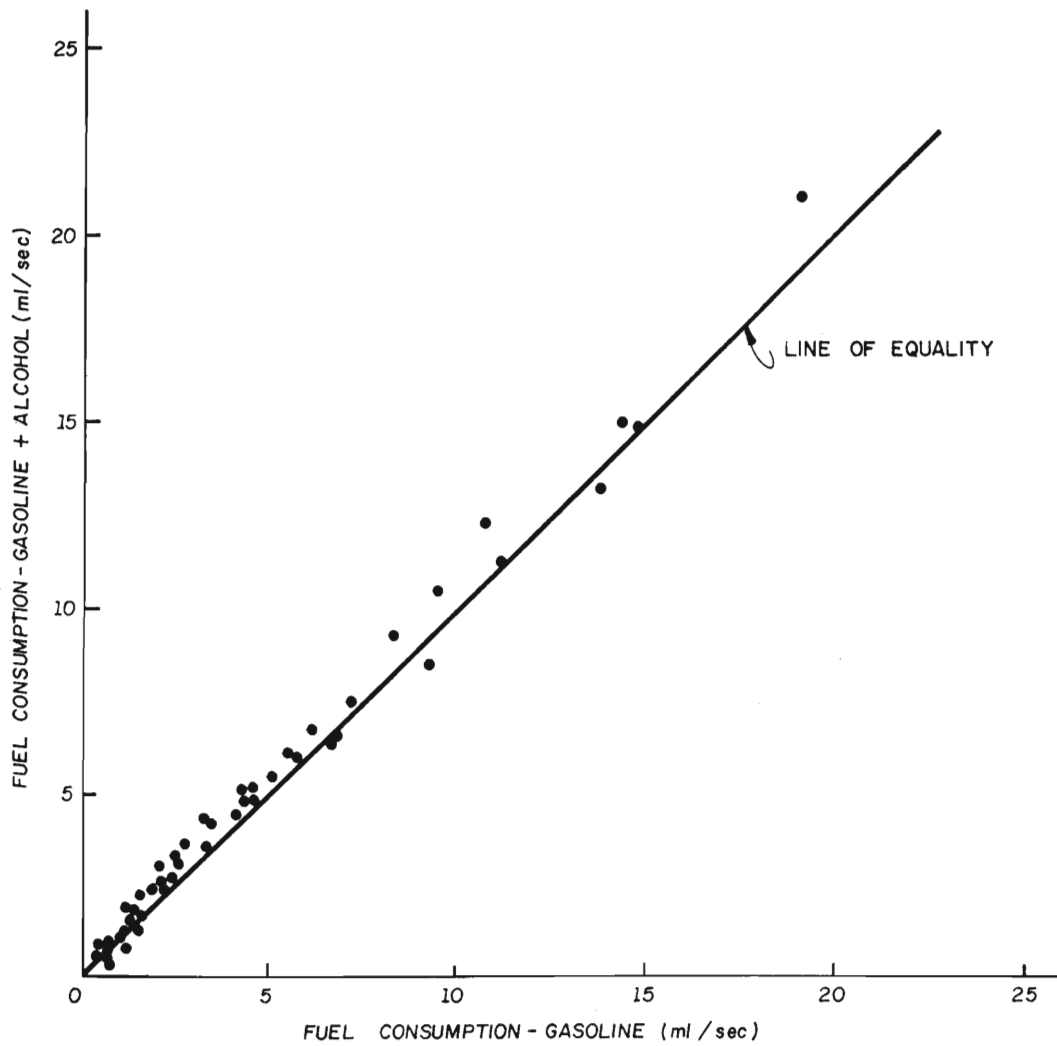


FIGURE 7.1 - GRAPH COMPARING THE CONSUMPTION OF PURE GASOLINE WITH THAT OF GASOLINE + ALCOHOL (LIGHT GASOLINE TRUCK).

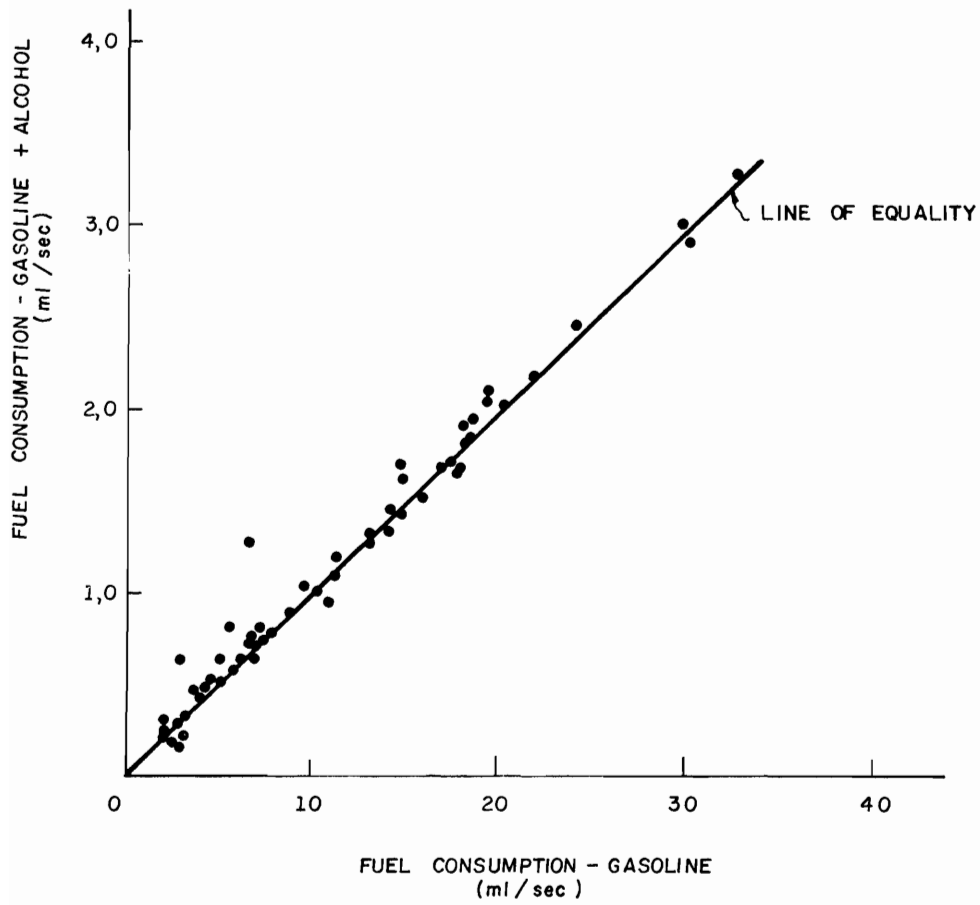


FIGURE 7.2 - GRAPH COMPARING THE CONSUMPTION OF PURE GASOLINE WITH THAT OF GASOLINE + ALCOHOL (VW - 1300 CAR)

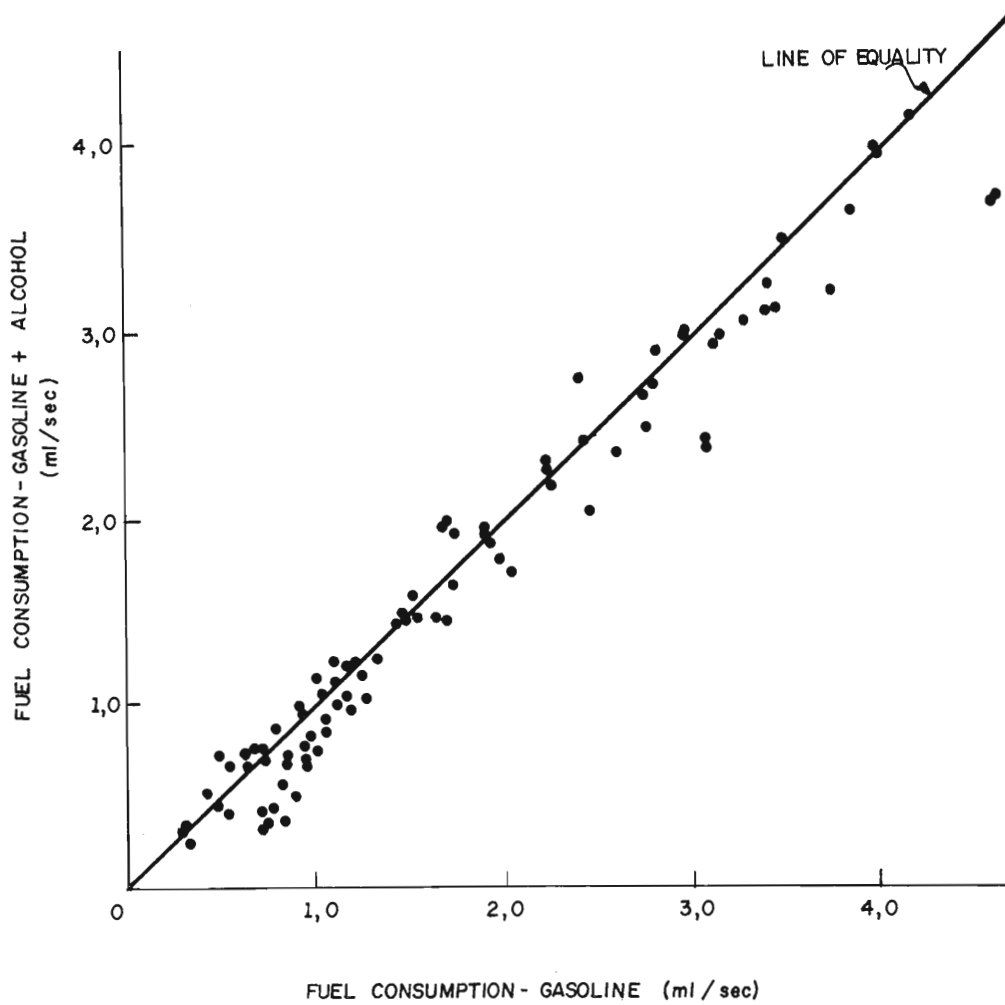


FIGURE 7.3 - GRAPH COMPARING THE CONSUMPTION OF PURE GASOLINE WITH THAT OF GASOLINE + ALCOHOL (UTILITIES).