several stations suggests interesting possibilities it serves well to emphasize the fact that these investigations must necessarily extend over a period of years in order to observe the effect of the changing seasonal conditions. It is not improbable that results obtained from the present year's crop may result in an entirely different ranking of the several stations. This is especially true of those stations which depend on natural rainfall and where the temperature ranges are wide and the growing season more or less changeable. Perhaps the most interesting fact, however, is that under all the diverse conditions obtaining at the stations represented the relative rank of the varieties as regards yield of oil has, with few exceptions, been the same at all the stations. Certainly this should be sufficient basis to justify a continuation of this work over a sufficient number of years to eliminate, as far as possible, those factors which change from year to year and which are not generally subject to control.

In conclusion let it be emphasized that the foregoing observations are entirely from the standpoint of seed values as viewed by the oil miller. When these investigations have been carried far enough to warrant definite conclusions it will then be necessary to correlate the value of the several varieties from this standpoint with the evaluation of these varieties on the basis of lint production and their general adaptiveness to specific locations in the cotton area in order to determine the true value of such varieties to the grower.

CONTRIBUTION FROM BUREAU OF PLANT INDUSTRY,
U. S. DEPARTMENT OF AGRICULTURE

A PROPOSED SUBSTITUTE FOR THE PRESENT OFFICIAL LYE TABLE OF THE I. C. S. C. A.

BY H. J. MORRISON

The official lye table for maximum amounts allowed in refining crude cotton seed oil by the Rules of the Interstate Cotton Seed Crushers Association is based on the amount of NaOH necessary to neutralize the free fatty acid plus certain excesses.

The latter figure increases abruptly at each multiple of two per cent in free fatty acids.

Plotting these figures necessarily gives a zig-zag or saw tooth curve.

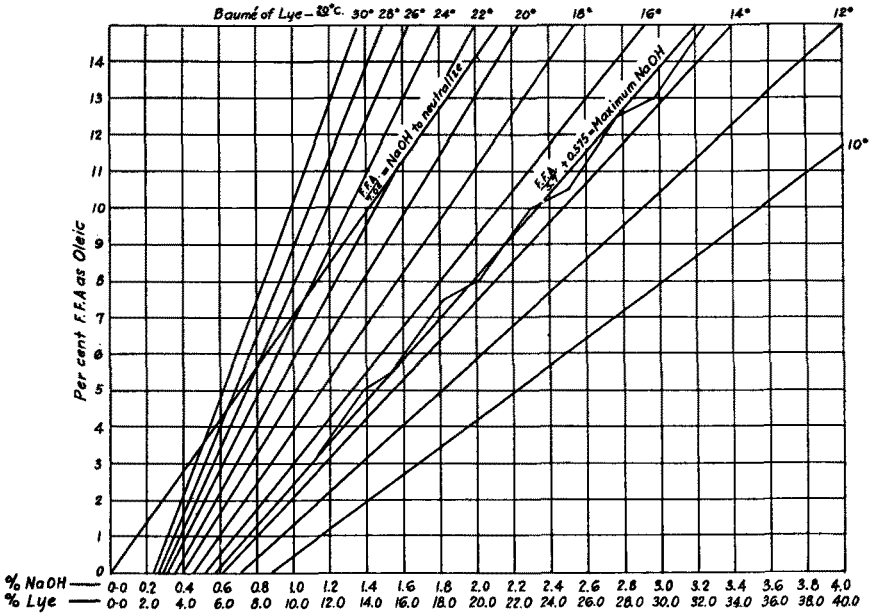
If a straight line is drawn through the average of the saw tooth curve, we necessarily have a curve in which the increases in maximum are gradual and violent differences avoided.

The formula for neutralizing is:

$$\frac{\text{F. F. A.}}{7.05} = \%\ \text{dry NaOH}$$

The excesses allowed in the present official table are experience figures and consist of an increasing excess with increase in free fatty acids.

The chart shows the line of neutralization, the saw tooth line of the present official table and the straight line drawn through the latter.



The formula for this line is:

$$\frac{\text{F. F. A.}}{7.05} + 5.75 + \frac{\text{F. F. A.}}{30} = \frac{\text{F. F. A.}}{5.7} + .575 = \text{Maximum NaOH}$$

It will be seen that this formula consists of the neutralizing factor, a constant excess factor and a factor varying with the F. F. A.

Such a straight line base allows the ready plotting of the various strengths of lye usually used.

These have been plotted on the graph and their convenience for finding the maximum per cent of any strength of lye allowed for a given F. F. A. content is obvious.

The strengths of lye used in these graphs are based on the official Sodium Hydroxide table at 20°C.

At the next convention such a substitute will be submitted to the appropriate committees for action.

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