

# Cantaloup Fertilization Tested In Yuma County

1951 Results Are Reported

By W. D. Pew

Many factors affect the profitable production of cantaloups. Not the least in importance is the feature of plant nutrition or soil fertilization.

The use of commercial fertilizers in the production of this crop is annually becoming of greater importance in Arizona. Therefore, any reduction in the use of fertilizers which can be realized through timely applications and the judicious use of these materials will show a correspondingly higher profit for the grower without depleting the fertility level of his soil.

In an attempt to better understand the fertilizer needs in cantaloup production as measured by crop responses, a comprehensive fertilizer test was conducted during the 1951 growing season in cooperation with the McLaren Produce Company of Yuma. The test was designed to determine cantaloup responses resulting from applications of the three major fertilizer elements — nitrogen (N), phosphate ( $PO_4$ ), and potash ( $K_2O$ ). The crop was grown in a commercial field where the growing procedures except the application of the different fertilizer mixes, was done by the grower in the generally accepted commercial manner. The results are presented graphically in Figures 1 and 2 (at right).

## Nitrogen Best

Let us first evaluate the data shown on these graphs from the standpoint of the overall effects of each of the three major fertilizer materials. Our most beneficial results were brought about by the application of nitrogen (Figure 1). This is easy to see when we follow the nitrogen curve and note the progressive and significant increases in total yield as the nitrogen rate is increased to 60 pounds of actual nitrogen per acre. Increasing the rate to 90 pounds produced no improvement over the 60 pound rate. The 120 pound rate, however, resulted in a sharp reduction in total yield.

Let us now consider the data from

the standpoint of yields of only the most important commercial sized melons — 45 and 36 melons per crate — (See Figure 2). Note the significant increases associated with the application of as much as 90 pounds actual nitrogen per acre. No reduction in quality was noted in fruits taken from even the plots receiving the largest nitrogen application.

Regardless of the rate of phosphate used, (see Figure 1) there was no improvement in either total yield or yields based on the important commercial sizes. Actually a reduction, though not significantly important, was recorded at both rates of application. Moreover, there was no apparent difference in quality whether the melons received no phosphate or 120 pounds per acre.

The use of phosphates as a band application at thinning time on soils similar to those used in this experiment is of no value in so far as yields are concerned and is therefore not a feasible practice unless its use can be justified by improved quality.

Potash applications produced results very similar to those obtained where phosphate was used. Adding potash at the rate of 120 pounds actual  $K_2O$  per acre did not significantly increase yields or appear to improve quality. The statement concerning the advisability of using phosphates would hold true for potash applications.

## Remember These Points

1. Applications of nitrogen up to 90 pounds actual nitrogen significantly increased both total yield and the yields of the most important market sized melons.
2. Excessively large applications of nitrogen with or without phosphorous or potash or both tended to cause vegetative growth at the expense of melon setting and maturing.
3. Poor quality did not appear to be associated with high rates of nitrogen application.
4. Phosphate applications up to 120 pounds per acre did not improve yields or apparent quality.
5. Applying as much as 120 pounds of actual  $K_2O$  (potash) neither increased yields nor appeared to improve quality.

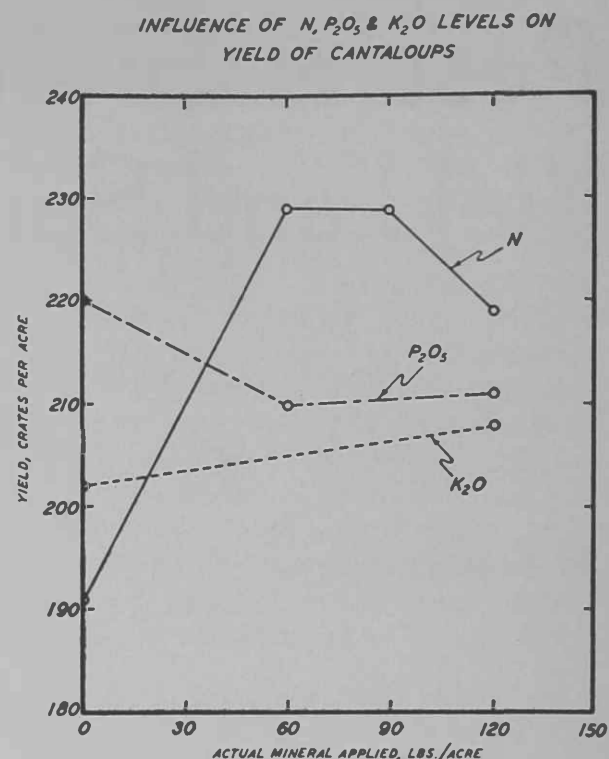


Figure 1

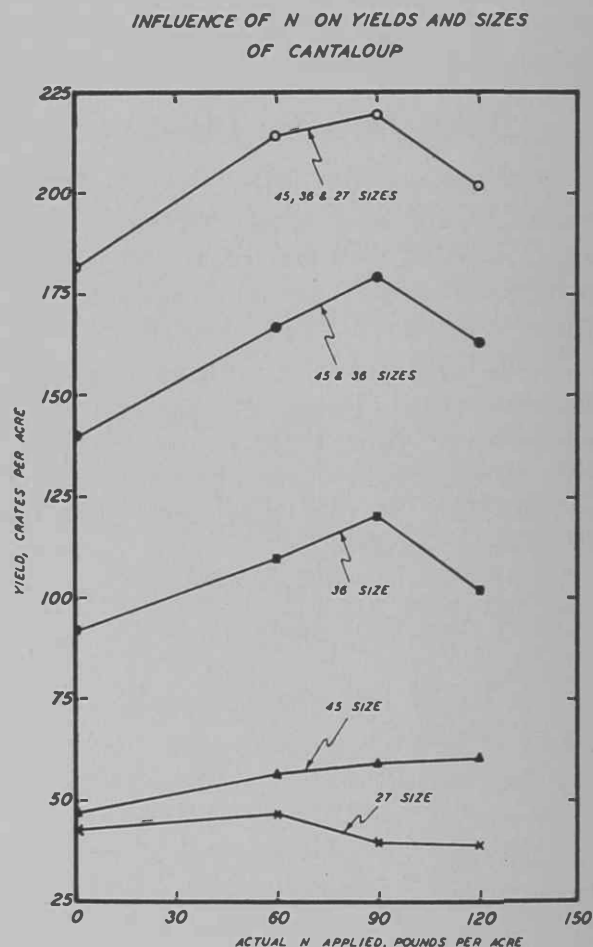


Figure 2

These results though quite revealing and interesting are not extensive enough to justify unqualified fertilizer recommendations under all soil conditions and methods of applying fertilizer now in use in Yuma Valley. The use of any fertilizer material should be regulated by serious thought and consideration on the part of the grower. Know your crop and know your soil.

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