Test Phosphorus on Melons

Use of Fertilizer Accurately Checked With Radioactive "Tracer" Elements

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The cantaloup industry in Arizona during 1952 was valued at about eleven million dollars. Fertilizer applications to melon land are usually moderately heavy to insure maximum yields.

Although some farmers have observed favorable results from applications of fertilizer phosphate, information available concerning the actual demand for phosphorus by cantaloup is lacking. The availibility of applied phosphate as influenced by different placement of the fertilizer also is not well known.

Tests Made at Experimental Farm

To obtain information on these subjects, a field experiment on a soil low in "available" phosphorus was conducted on the University of Arizona Citrus Farm in Maricopa County. Super-phosphate and liquid phosphoric acid at a rate of 60 pounds P_2O_5 per acre were used at two placements, the first method 4 inches below the seed and, the second, 4 inches deep and 4 inches to the furrow side of the seed.

The fertilizer phosphorus was *tagged* with radioactive phosphorus. This allowed positive identification of the phosphorus in the cantaloup that was absorbed from the fertilizer added.

Phosphorus Measured

The amount of tagged tracer phosphorus was then measured and subtracted from the total phosphorus of the plant, making it possible to distinguish between phosphorus absorbed from the fertilizer and from the soil.

Between 30 and 60 percent of the phosphorus in cantaloup was taken from the fertilizer sources according to data shown in Figure 1. This is a high rate. Liquid phosphoric acid appeared to be absorbed a little better than superphosphate at the peak of the fruiting period shown in this figure.

▲ These cantaloup plants are receiving radio phosphorus under field conditions in the Salt River Valley.

Placement of the fertilizer phosphate in a band 4 inches below the seed is also shown in Figure 1 to be better than that banded 4 inches deep and 4 inches to one side of the seed.

Increases Found

Significant increases in cantaloup yield were found as a result of application of superphosphate or liquid phosphoric acid at the rate of 60 pounds P_2O_5 per acre under conditions of this test. See Figure 2.

Figure 1
The absorption of fertilizer phosphorus at two different placements.

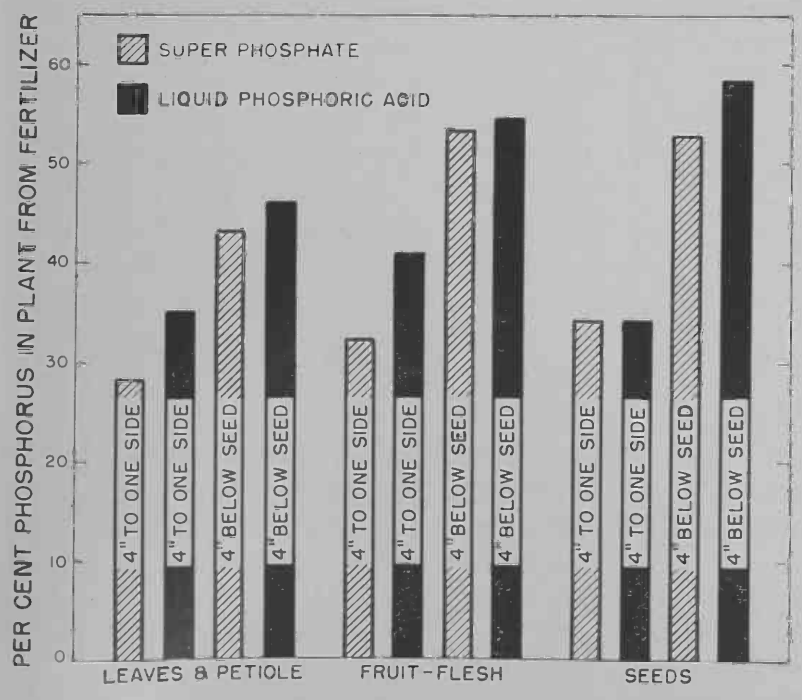
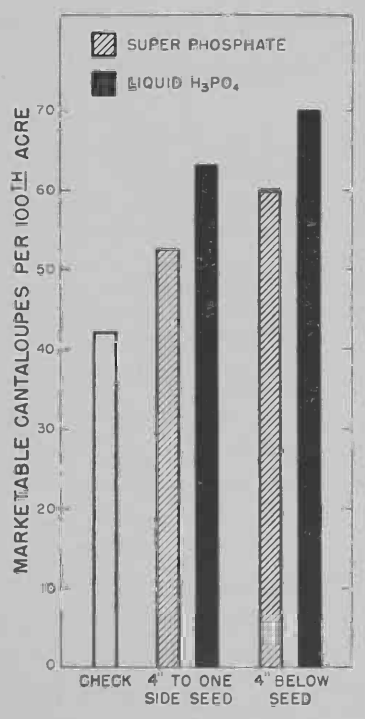


Figure 2
The yield of cantaloup as influenced by two methods of placements of fertilizer phosphorus.



Watch Out For Poisonous Plants

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given as a drench, but absorption is too slow except for stronger animals. If animals are nervous, calcium can be given the same way as glucose to relieve these symptoms.

In most range areas of Arizona, the County Agricultural Agent can identify suspected plants and the local veterinarian can treat or outline treatments for affected animals.