

Burro weed with flowering stems. This is one of the plants that causes considerable poisoning in early spring.

# Watch Out For Poisonous Plants

Good Management of the Range Is Best Control Recommendation

By William J. Pistor

Animal Pathology

The later winter and spring are two seasons when rangemen suffer cattle losses due to poisonous plants. If winter rains have been good, there usually is an abundance of succulent weeds that cause bloat or poisoning from nitrates or other toxic substances. If the rains have been poor, the grasses and weeds do not grow; but many of the drought-resistant shrubs green up and cattle will graze some that contain toxic substances.

## Watch Your Cattle

Good management, including careful watching of the cattle, is a sound recommendation to control these losses. There are a few antidotes for certain poisons, but losses from these poisons are so sudden that a stockman may not have time to treat the affected animals unless he has the specific treatment available.

Plants are poisonous to animals only after they have been grazed in sufficient amounts. The first step for a

At the left, below, is a typical pigweed plant. At right is a close-up of the pigweed plant tassel.



stockman to make, if he suspects plant poisons, is to determine if animals are grazing the suspected plants. If the rancher does not know which plants to suspect, he should look for uncommon weeds or evidence showing that the animals are eating plants that are not usually grazed. These plants can be sent to the Agricultural Experiment Station, University of Arizona, Tucson, for identification.

Frequently water is suspected as being poisonous. This might be so in a few cases, but usually it is suspected only because cattle die near these watering places. The reason for cattle dying near the water is that the poison plant material is dry when eaten. It will go into solution and be absorbed after the animal drinks water. The poisonous plants might therefore be some distance away.

## Study the Animal

The symptoms of the affected animals should be studied. The sudden onset of symptoms of disease, especially when several animals in a herd grazing in the same area are affected at the same time, is indicative of plant poisoning. Diarrhea, skin lesions, jaundice, convulsions, staggering, pushing, shivering, blindness, paralysis and depression are suggestive symptoms.

Some cases of plant poisoning resemble infectious diseases, but usually in an infectious disease only one or a very few animals will become sick. Infectious diseases give definite lesions on post mortem examinations such as pneumonia, abscess on the liver or other organs or other changes easily seen.

The usual lesions found in plant poisoning are not very definite and are of value only to a trained veterinarian. Tissues or organs sent into a laboratory are of doubtful value because the organic poisons found in plants are very difficult to identify.

This is because of the many combinations and changes that occur after they are mixed with the digestive juices and absorbed by the tissues.

The effects of plant poisons vary according to the poisonous substance that is absorbed by the animal body. Since these substances are different in most poisonous plants there is no one cure for all of them. Careful study of all possible causes of death losses should be made and when necessary a trained veterinarian should be called.

## Consider These Factors

Stockmen should consider the following points in poison-plant losses on their range:

- Early spring and late winter seasons produce problems of abundant succulent weeds that may cause bloat or cyanide or nitrate poisoning. If the season is dry, and feed is scarce, cattle will graze possible poisonous shrubs or other plants that they usually avoid.

- In investigating suspected losses, determine which plants the cattle are grazing. If they are grazing poisonous plants, the cattle should be moved slowly out of the area or supplied with supplementary feed to prevent them from grazing these plants.

- Affected animals should be given general treatments to aid them in overcoming symptoms. Laxative of mineral oil or epsom salts should be given to rid the intestines of the material. Glucose (corn sirup) is a good general treatment for weak affected animals. 500 c.c. of a 25% solution of glucose can be given intravenously (jugular vein) or into the abdomen. Care should be taken that this solution is sterile. It can be repeated every 12 hours. Glucose can also be

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# 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 availability 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.

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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.

Figure 1

The absorption of fertilizer phosphorus at two different placements.

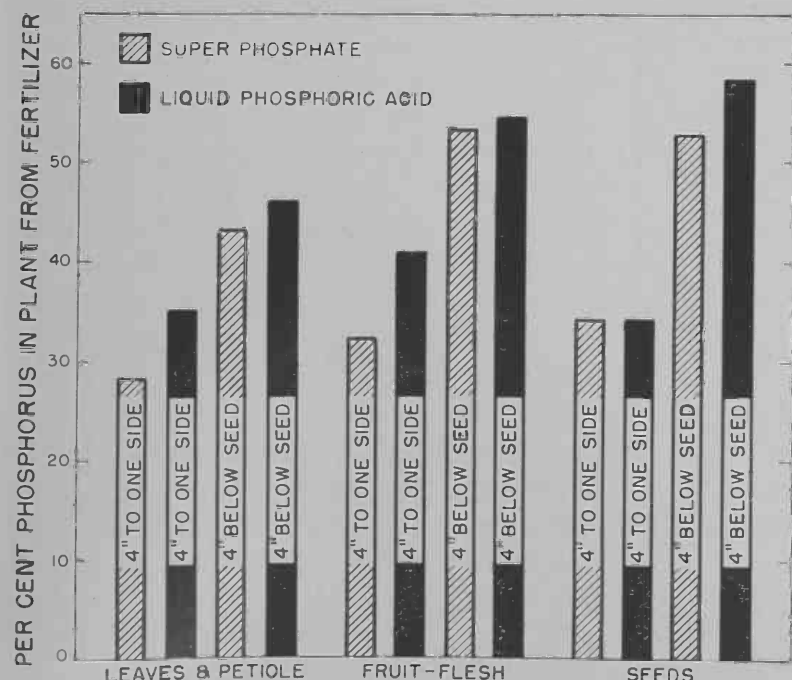


Figure 2

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

