

# Ag and Food NEWSLETTER

## Chlorine Essential To Plants

CHLORINE BECOMES THE SEVENTH MICRONUTRIENT to be shown to be required by plants, according to P. R. Stout, University of California. Earlier discovery of chlorine's necessity was hindered by extreme difficulty in achieving chlorine free conditions: a drop of perspiration will ruin an experiment. Essential range of chlorine appears to be 200 to 400 p.p.m. Like many other of the essential plant elements chlorine can be toxic at higher concentrations. Chlorine requirement level appears to be about 1000 times that of molybdenum, the most recent previous addition to the list of essential elements (added by Stout and his coworkers at Berkeley 16 years ago).

## Tinless Tin Cans

CANS COATED WITH SPECIAL ENAMELS of aluminum will soon be used for packaging hundreds of products, according to speakers at IFT meeting in Los Angeles. Tinless can research has been stimulated by realization that half of world's tin production is in the path of expected Communist aggression in Indochina and other U. S. tin requirements are met only by long ocean hauls. Last year some chemically treated plain steel cans were used satisfactorily for peas and corn. Steel cans have not yet been developed satisfactorily for foods with high acid content. Aluminum looks particularly attractive in light of abundant sources of bauxite. Aluminum cans can be made from plate, steel coated with a thin layer of aluminum, in manner similar to tin can production.

## Form-Fit Plastic Packaging

SHRINKABLE POLYETHYLENE FILM for packaging frozen poultry and other frozen foods has been introduced by Mehl Manufacturing Co. of Cincinnati. Film is claimed to have relatively high gas transmission resistance and gains strength as it shrinks to the contours of the item being packaged. Technique is to dip the partially evacuated, wrapped, and tied package into boiling water, which causes plastic to shrink in from 1 to 2 seconds.

## Underground Storage

UNDERGROUND COLD STORAGE warehouse with a planned capacity of 2500 carloads of frozen foods is nearing completion near Kansas City, Kan. The warehouse, located in a cave in an active rock quarry, will provide cheaper cold storage than conventional plants, according to the builder, Inland Cold Storage of Kansas City. While present plans envision only frozen foods, company is considering nonrefrigerated storage of other commodities including chemicals.

## Orange Crop Down

SMALLEST ORANGE CROP IN YEARS is expected in California as a result of small growth here and mild but extremely late frost last year. Processing plants anticipate a marked reduction in output; best fruit goes into fresh fruit sales. Last year over 400,000 tons of California oranges were processed; this year processing plants can plan on about 200,000 tons. Frozen juice for consumers will be hard hit—4.7 million gallons of frozen concentrate were made during last year's season and this will probably drop. California's output of frozen orange juice is negligible when compared with Florida's. Florida production for season ending June this year was around 66 million gallons of frozen concentrate.

## Plant Food Metabolism

MOVEMENT OF FOODS AND MINERALS down through plants has been explained by several conflicting theories which may now be headed for resolution as a result of isotope studies. Using tritium and phosphorus 32, Orlin Biddulph, Washington State College, found that tritium reaches roots much faster than phosphorus when both are applied to underside of leaves. Evidence therefore opposes a conventional interpretation of movement by mass flow of water, one of present theories. Other current theories: inorganic minerals are carried by protoplasmic flow; minerals and other materials diffuse independently of either protoplasm or water movement by some completely unexplained mechanism. Work was presented at the meeting of Pacific Division of AAAS (for more on meeting see page 715).

## Insect Electrocution

ELECTROCUTION OF INSECTS, subject of some USDA research, has apparently attracted the interest of International Harvester, which recently introduced an all-purpose farm tractor mounting a high capacity electrical generator. Tractor, called the Electrall, was originally developed to provide convenient electric power for auxiliary farm equipment such as harvesters. Harvester has been testing a device powered by the generator for the electrocution of insects: they are attracted by certain wave lengths of radiant energy, in the ultraviolet and blue range and electrocuted by an electric grid. Set up has been night-field-tested with interesting results. Reductions in population up to 69% at a distance of 26 rows from the trap and 57% at 46 rows away are claimed. Harvester people envision night cultivation with devices for attracting and electrocuting insects mounted on the tractor.