

TECHNICAL SECTION

JOURNAL OF
**Agricultural
and Food
Chemistry**

- Biochemical Engineering
- Fermentation
- Food Processing
- Nutrition
- Pesticides
- Plant Nutrients and Regulators

PLANT NUTRIENTS AND REGULATORS

- Plant Nutrients from Slag.** Blast furnace slag was found to be a more effective liming material than limestone on sandy loam soils by Chichilo, Armiger, Specht, and Whittaker. A sweetclover crop limed with slag was found to contain much more manganese, copper, magnesium, and boron than crops limed with limestone. Aluminum, iron, and sodium contents were unaffected.
- pages 458 to 468
- Soil Conditioner.** Chemical effects of a representative sodium polymer soil conditioner were determined by MacIntire, Winterberg, Sterges, and Clements through 760 analyses of greenhouse crops from eight soils, unlimed and limed. In general, it was found that addition of the soil conditioner caused decreases in calcium and magnesium contents and uptake of the crops and increases in the potassium and sodium uptake.

NUTRITION

- Pig Nutrition.** Unsuckled baby pigs were isolated from the herd environment and raised to eight weeks of age on purified rations by Bauriedel, Hoerlein, Picken, and Underkofler. Purpose of the experiment was to test the feasibility of maintaining pigs from birth on purified rations and to select a ration suitable for studies of vitamin B₁₂ depletion. With a ration of glucose, purified soybean protein, methionine, hydrogenated vegetable oil, phospholipides, mineral salts, vitamins (but no added B₁₂) depletion of the animals' vitamin B₁₂ reserves was obtained in about eight weeks.
- pages 468 to 472

FOOD PROCESSING

- Vegetable Components.** More detailed information on tomato composition may help solve the processing and storage problems involved in the preparation of tomato products of high solids content. Williams and Bevenue provide details on the carbohydrate components of tomatoes. Free sugars, representing more than 60% of the solids were D-fructose, D-glucose, sucrose, and a ketoheptose. Polysaccharide materials isolated were strongly lyophilic and must contribute to the consistency of tomato products. Every 100 grams of tomato solids were found to contain 60 grams of reducing sugars and three grams of protein, both of which may produce off-color and flavor as a result of the Browning reaction.
- pages 472 to 476
- Flavor Effects.** The ineffectiveness of monosodium glutamate in enhancing the flavor of certain types of food led Fagerson to investigate the ionic species of the salt. It was found that one ionic form of the glutamate was predominantly present between pH 4.5 and 7 and that there was good agreement between the percentage of this ionic form present and its flavor-enhancing properties. A method was devised for estimating total glutamate concentration for desired flavor effect above the lower pH limit.

PESTICIDES

- Herbicide Residues.** A method for determining residues of CMU herbicides in soils and plant tissues is presented by Bleidner, Baker, Levitsky, and Lowen. The method is applicable for determining microgram quantities in soils and a variety of crops. In refined cane sugar, the method will detect as little as a few parts per billion.
- pages 476 to 479