

of variety improvement is well under way, said Dr. Weiss, and two new varieties are expected for release to seed growers next year. This is an important point in soybean production because costs have increased appreciably in the last decade without a consistently increasing market value, thus reducing the margin of profit.

Weeds constitute another major detriment to high unit production, Dr. Weiss stated. For instance, moderate infestations of foxtail and smartweed in the North Central region have been shown to decrease soybean yields by as much as 10%. Methods of planting and culti-

vating can help the situation, but chemical weed control is being studied intensively. Dinitro and 3-chloro isopropyl-phenyl-*N*-carbamate are both being widely tested as pre-emergence herbicides. Dinitro is being recommended by a few state experiment stations, but a slight reduction in stand can be expected with its use, said Dr. Weiss. He also said that the 3-chloro compound also causes slight injury but it seems less hazardous in this respect than dinitro. Herbicidal oils, such as those used on cotton, are showing promise in research studies, but they are not yet recommended.

pie firm is located in the Brown Bldg., Fourth & Chestnut Streets, Philadelphia 6, Pa.

Pacific Borax Completes Ag Chemicals Plant in Texas

Pacific Coast Borax Co. has announced that it has completed construction of its new plant for mixing agricultural chemicals at Slaton, Tex. Herbicides and cotton defoliants will be produced at the plant initially.

J. M. Nunn, former head of the Dumas Farm & Ranch Supply Co., is in charge of the operations. His headquarters will be in Lubbock, Tex.

Industry

Red Star Yeast, Charmin Paper Mills To Cooperate on Torula Yeast Development

Red Star Yeast & Products Co. and Charmin Paper Mills have announced the signing of an agreement for production, sales, and product development of torula yeast. Under terms of the agreement, Charmin will produce the torula yeast at its 10 million pound-a-year plant now being built at Green Bay, Wis., and Red Star will begin researches in torula yeast with a view to developing additional new uses and a full line of products.

Torula yeast, a high vitamin and amino acid product, will be produced from waste liquors produced in the manufacture of sulfite pulp. It was first produced in Germany and other European countries during World War II when it was used to supplement the vitamin and protein requirements in their national diets. A study of the process first began in this country in 1943, when the Sulphite Pulp Manufacturers' Research League, an organization of 13 pulp mills in Wisconsin and Michigan, started laboratory and pilot plant work. In 1948, the first commercial feed yeast plant was built by Lake States Yeast Corp. at Rhinelander, Wis., adjacent to the Rhinelander Paper Corp. The plant has now been taken over by the mill and is producing 3 million pounds of the yeast annually.

The process used by Lake States and Rhinelander was described in a Staff-Industry Collaborative report in the August 1951 issue of *Industrial & Engineering Chemistry*. The process is a continuous one, unique in the production of yeast. The waste sulfite liquor from the paper mill is passed through a screen to remove the solids and stripped of sulfur dioxide. The liquor is then cooled and allowed to flow into the fermentor, where diammonium phosphate, potassium chloride, and ammonia are added to provide the nutrient. After an initial inoculation with a laboratory culture of

Torulopsis utilis, no further inoculations are required.

The complex reactions by which hexose and pentose sugars from wood, nitrogen, phosphorous, potassium, and minor trace elements are converted is not yet understood completely. However, it is probable that the sugars first undergo a phosphorylation and splitting to three-carbon compounds and, then, to two-carbon compounds, such as ethyl alcohol, acetic acid, and acetaldehyde.

In 1951 it was reported that the torula yeast product from the Lake States' plant contained 417.3 γ of niacin per gram of yeast, 45.0 γ of riboflavin, 37.2 γ of pantothenic acid, 33.4 γ of pyridoxin hydrochloride, and smaller amounts of folic acid, thiamine, and folic acid. A typical amino acid assay showed almost 7% of glutamic acid, about 4% lysine, about 3.5 to 4% each of isoleucine, leucine, and arginine, and smaller amounts of eight other amino acids.

The principal outlet for torula yeast is in animal feed supplements, the usual recommendation being 50 pounds of yeast per ton of poultry feed. However, the nutritional value of the yeast may make it potentially useful in human food.

These possibilities are being investigated by Red Star under its agreement with Charmin. The announcement from these two companies also suggests that its possibilities as a basic material for pharmaceuticals is also being studied.

Emulsol Appoints Sales Representatives in Philadelphia

The Emulsol Corp. has appointed Wm. Gillespie & Son as representative in the Philadelphia area to the confectionery bakers, bakery suppliers, and ice cream and other food processors in the sale of Emulsol's albumens and various edible emulsifier specialty products. The Gilles-

Research

Garbage Economical Source Of Humus at \$15 per Ton

A relatively rapid method for converting municipal garbage into humus is reported in a new technical bulletin recently released by the University of California. The bulletin contains a detailed description of laboratory and pilot plant studies of bacterial composting methods.

In the investigations municipal garbage was combined with sewage sludge and the refuse was converted to humus without the addition of decomposition agents or chemicals. Biggest problem of the process is aeration of the material. The bacteria which are responsible for the conversion of garbage to humus are aerobic and various methods are described for turning the compost heat to provide the organisms with air.

The California report says that they expect the research to be of inestimable value in encouraging the development of commercial composting in that state. Since California depends greatly upon the large scale farming of heavy or formerly arid soils the organic matter provided by compost should find a ready market. Engineers estimate that the cost of the process should be about \$15 per ton.

Burned Brushland Makes Good Pasture

Much of the brushland of the state of California can be converted to rangeland by burning, according to Frank J. Veihmeyer of the University of California. Mr. Veihmeyer, chairman of the irrigation department at the university, addressed the recent meeting of the American Geophysical Union.

He reported on studies conducted in his department on the water permeability of soil following burning. According to these studies, burning brushland does

not deplete the water storage potential of the soil. On the contrary Veihmeyer said, "the burned lands in reality had less demands made on their water by vegetation, less water was required seasonally to restore the soil to capacity. Clearing brush from watersheds therefore offers a means of increasing water supplied besides increasing water by the burning."

Government

Restrictions on Fertilizer Exports Eased

The Office of International Trade of the Department of Commerce has announced that many chemical fertilizers can now be shipped without export permits. The permits will be required for shipments to iron curtain countries but other exports to areas will be from license restrictions. Ammonium phosphate, super phosphate, potassium sulphate and other prepared fertilizers are among the items removed from the restricted export list.

OIT says that the relaxation of export controls was made possible by the improved domestic supply of the commodities.

OIT Combines Agricultural Products and Chemicals

A recent move in line with the government reorganization has been the combination of the previous divisions of agricultural products and chemicals of the Office of International Trade into one combined agricultural and chemical products division. The new division will be concerned primarily with export licenses for these fields. The division will have jurisdiction over licenses in the fields of economic poisons, fertilizers, agricultural machinery, chemicals, and drugs.

Coumachlor Rodenticide

The Interdepartmental Committee on Pest Control, made up of representatives of the Departments of Agriculture, Interior, Defense, and Health, Education, and Welfare, has selected coumachlor as the coined name for the rodenticide 3-(α -acetyl - 4 - chlorobenzyl)-4-hydroxy coumarin.

Approval of the name by the committee implies that coumachlor is available for free use in designating the pure chemical.

Coumachlor has anticoagulant properties similar to dicumarol. Experi-

ments have indicated that when used in concentrations of γ 0.025% with suitable bait material it is effective in controlling rats and mice. Unlike some rodenticides used previously in baits, rats and mice do not develop shyness to coumachlor.

OIT Requests Industrial Data For Point 4 Program

The Office of International Trade of the U.S. Department of Commerce has requested American manufacturers to supply catalogs and price lists for us of Point Four field representatives overseas. Under the U.S. technical assistance program the OIT is responsible for technical guidance in the fields of commerce, industry, and transportation.

In addition to catalogs American firms have also been requested to supply the names of their agents or distributors in those countries where they have established local representation.

Additional information on this program can be obtained from the Commercial Intelligence Division, U.S. Department of Commerce, Washington 25, D. C.

People

Moyer Made President Of Chipman Chemical

Warren H. Moyer has become president of Chipman Chemical Co. He was formerly vice president and treasurer. The former president, **O. M. Bernuth**, has resigned and becomes chairman of the board of directors. **Charles M. Bernuth**, is the new treasurer; **Byron P. Webster**, vice president; **Cornelius A. McAloon**, secretary; and **Charles P. Inman**, assistant secretary.

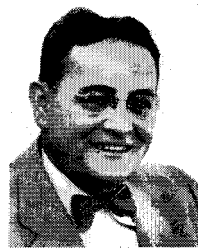
Herbert F. Tomasek has been appointed manager of the agricultural chemical division of Pittsburgh Coke & Chemical Co. This new designation of the former Pittsburgh Agricultural Chemical Co. division became effective Sept. 1. Headquarters are to be transferred from New York to the company's home office in Pittsburgh. **W. Scott James** succeeds Mr. Tomasek as sales manager, and **J. B. Skaptason** has been appointed division director for new products development.

Warren R. Schoonover is leaving the University of California at Berkeley to

do research on soil reclamation along the Nile Delta. He has received a Fulbright Award to do research, teaching, and consultation at the University of Alexandria during the 1953-54 academic year.

Lawrence F. Stayner, former sales manager of the Julius Hyman & Co. division of Shell Chemical Corp., has been made assistant to the division's general manager. **James J. Lawler** has been named to succeed Mr. Stayner as sales manager.

Henry J. Noebels has been appointed to head the applications engineering division of Beckman Instruments, Inc., in South Pasadena, Calif. He has been in charge of the physical instrumental analytical research laboratory of Heyden Chemical and adjunct professor of analytical instrumentation at the Newark, N. J., College of Engineering.



George A. Johannessen has been named agronomist for American Can Co.'s Pacific Division in San Francisco. He has been extension specialist in vegetable crops and fruit growing at Cornell University. He succeeds **W. C. Hatfield**, recently appointed to the Canco sales staff.

G. H. McVean has been elected to the newly created position of vice president in charge of operations in Canada for American Can Co. He succeeds **Gordon Mann**, who retired as general manager of the Canadian division after 34 years with the company. Mr. McVean has been sales manager for the Canadian division.

Stanley Andrews has resigned as administrator of the Technical Cooperation Administration to administer a national project in agricultural communication. He will work with land grant colleges and the Kellogg Foundation. Mr. Andrews, an agricultural editor and radio station owner in private life, was General Lucius D. Clay's advisor during the Berlin Airlift.

A. J. Dirksen has been appointed eastern sales representative of the sales development department of American Potash & Chemical Corp. He has been associated with the market development department of Phillips Petroleum Co. His headquarters will be in New York City.

Francis P. LaBelle becomes assistant chief engineer and Clyde P. Orr chief chemical engineer of Monsanto's phosphate division on Sept. 8.



H. F. Tomasek