

standard of living with the present rate of increase of population is perhaps the real problem.

With a limited potential expansion of the acreage of cultivated land he believes that methods of increasing production on present land will become increasingly important as the population of the nation grows and as he told the Associates, "We have not been turning our our findings at a rate equal to the rate at which they are being used. We need to start the research frontier moving upward at a more rapid rate. Since the response of the average producer follows most research advances by a time delay of 10 to 15 years the time to start moving the research frontier is now."

Industry

Cottonseed Oil to Be Extracted By Package Plant Process

A new process for the solvent extraction of oil from cottonseed will go into operation this summer at the plant of the Mississippi Cottonseed Products Co., Jackson, Miss. Known as the Package Plants process, the plant has been designed and engineered by the Lukenweld Division of the Lukens Steel Co.

The process eliminates the prepressing operations formerly required in other types of oil extraction schemes. Automatic and continuous operation results in reduction of labor costs by 75%, according to Lukenweld.

The plant will have a capacity of 150 tons of cottonseed or 75 tons of soybeans daily and is scheduled to be in operation sometime this summer.

B₁₂ Concentrate From Sewage Waste

The Milwaukee Sewerage Commission and the Alden Engineering Co. of Chicago have signed an agreement which may put the sewage people in the vitamin feed supplement business. Under terms of the contract the Chicago engineering firm will construct a plant to extract and concentrate vitamin B₁₂ from Milorganite, the dried disinfected sludge from the sewerage disposal plant.

Initial plans call for the engineering firm to build a pilot plant to study an extraction process developed by the commissions research group. The pilot plant will be built in the Chicago area, and is to be completed within 60 days. From 40 to 90 tons of the sewage sludge will be processed, if the process proves efficient and the engineer firm can prove that an adequate market exists, then they will decide whether or not to go ahead with construction of a \$1 million plant to be

coordinated with the already existing disposal plant near Milwaukee.

The original process for extraction of B₁₂ from sewage was developed on a recent contract with the Milwaukee Commission by Bernard Wolnak of the Miner Laboratories in Chicago.

The process should yield about a kilogram of B₁₂ for each 500 tons of processed fertilizer, according to the Commission.

If the process proves feasible, they plan to market B₁₂ concentrate either as a 40% aqueous solution or as a spray dried powder.

The concentrate on a dry basis would contain a minimum of 40 milligrams of B₁₂ per pound. The concentrate would be marketed for supplementation of animal and poultry feeds.

Food and Drug Administration has approved of the supplement for this purpose.

Foreign

Ozone Extends Storage Time for Bananas

Preliminary reports on some experiments conducted by British workers on the gas storage of bananas seem to indicate that low concentrations of ozone will extend the storage life of bananas by reduction of ethylene in the storage areas. The effect of trace amounts of ethylene on the ripening of bananas and other fruits has been recognized for some time (AG AND FOOD, April 29, page 264).

The British work was the result of study of the effect of leaf spot disease on the premature ripening of bananas in shipment from Jamaica, B.W.I., to the British Isles. In shipment the infected fruit would begin to ripen and by production of ethylene stimulate the premature ripening of the rest of the cargo.

By the use of ozone to reduce ethylene content in the refrigerated cargo holds of vessels it was found possible to hold the fruit cargo up to 20 days without any onset of ripening. After treatment with ethylene the fruit then ripened normally. The operating conditions for the ozone treatment have not yet been developed and the British conclude that further work on a pilot plant scale is necessary before the scheme can be generally recommended.

Nicaraguan Milk Plant to Start Production in August

The first milk drying plant in Central America is expected to start production this August. The plant, constructed as part of a program to provide milk for 40,000 Nicaraguan school and pre-

school children, has been partially financed by a \$115,000 loan from the United Nations International Children's Emergency Fund. The cost of the plant to the government will eventually be amortized through milk purchases from the operating company.

Reinaldo Lacayo, general manager of the plant, has offered the facilities to train interested Central American dairy personnel.

In a recent conference with representatives of the Dairy Industries Society, International, and representatives of the UN Food and Agricultural Organization, the training program was advanced as a means of developing the Nicaraguan plant as a practical training school to assist other Central American countries in developing their own dairy industries.

Mr. Lacayo's company has already established a pasteurizing plant in Managua, which has been in production for about two years and they expect to set up another soon in nearby Leon.

Research

USDA Processes Animal Fats For Tin Plating Purposes

Animal fats such as lard and tallow when slightly modified can be substituted for imported palm oil used in hot dip plating according to a recent announcement of the U. S. Department of Agriculture.

The process for modification of animal fats was developed at the Armour Research Foundation of the Illinois Institute of Technology under a contract sponsored by the USDA. The process has proved successful in stabilizing, hydrogenating, and deodorizing animal fats to yield a product which is equal and, in some ways, superior to the previously imported palm oil.

According to USDA, the development of a satisfactory tinning oil from commercial grades of grease and tallow results in three important advantages. It provides a cheaper tinning oil, creates a ready potential market for surplus fats, and reduces dependence on imports of palm oil.

Wilt-Resistant Canning Tomatoes Object of UC Research

A good canning tomato should have the following qualities—good yield, early harvest, small vine to permit easy picking, and resistance to *Fusarium* and *Verticillium* wilts as well. The answer to this problem for California growers and processors may be coming from the Agricultural Experiment Station at the