Structure-Activity Effects in Plant Growth Regulators Described

NOTTINGHAM, ENGLAND.—An important aspect of the effect of structure of organic molecules on their plant growth regulating activity was reported to the Society of Chemical Industry here during its 72nd annual meeting by R. L. Wain, University of London Professor. He also reported that certain aryloxy-acids have fungicidal action.

A hydrogen atom on the carbon adfacent to the carboxyl group is necessary jor activity in plant growth regulating activity in the aryloxy-acids, stated Dr. Wain. While it has been well established that an unsaturated ring system and a carboxyl group are essential, he said that his study of growth regulating activity, depending upon elongation, has shown this additional structural requirement. As an example in support of his finding, the speaker reported that an aryl isobutyric acid with no α-hydrogen was found inactive. His studies included the acetic, propionic, butyric, and isobutyric acids.

Stating that substitution in the nucleus exerts an effect on activity, Professor Wain suggested that rotation of the side chain about the oxygen affects potency. This, he said, is substantiated by comparison of the growth regulating activities of appropriately selected halogen-substituted compounds.

Pointing out that the active aryloxy-acids have three essential groupings arranged around an asymmetric carbon atom, Prof. Wain reported studies showing that the (+) enantiomorphs of α-(2-naphthoxy) propionic acid is highly active while the (−) isomer shows very little activity and the racemic mixture is intermediate.

Certain aryloxy-acids are effective as systemic fungicides, reported Prof. Wain. A significant degree of protection against "chocolate spot" disease was afforded bean seedlings by application through the roots of aryloxy-acids at 10 parts per million.

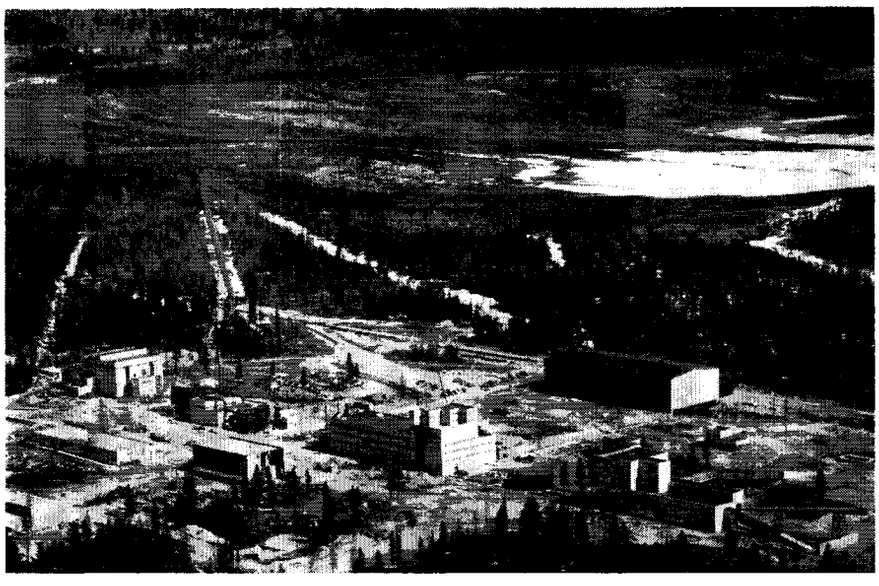
Industry

Consolidated Mining Building Phosphate Plant at Kimberley

Consolidated Mining & Smelting Co. of Canada, Ltd., is finishing up the construction of its new fertilizer plant at Kimberley, B. C., and hopes to begin production later this summer. Output will be 70,000 tons annually of ammonium phosphate (11–48–0) fertilizer. Major market for the output is expected to be in the Canadian prairies.

Ammonia for the process will come from the company's nitrogen plant at Calgary. Phosphate rock will be imported from subsidiary operations in Montana. Sulfur is to come from the tailings of the Sullivan concentrator about half a mile from the plant site. Tailings will be roasted in a suspension-type roaster, the sulfur dioxide evolved being converted to acid in a contact process plant. The usual wet process method will be used for phosphate.

Consolidated Mining & Smelting's new fertilizer plant at Kimberley, B.C. In the background is the tailings pond from which sulfur for acid comes. The four buildings in a row from left to lower right corner are: roasters, the contact sulfuric acid plant, the phosphate plant, and the rock crushing plant. The storage building is behind the phosphate plant



American Agricultural to Build Fertilizer Plant in Ohio

American Agricultural Chemical Co. is constructing a complete fertilizer plant on Highway 65 at Cairo, Ohio. The plant will include a 24,300-square-foot standardized wet-mix steel building produced by the Luria Engineering Co. An additional dry-mix building will be erected by the A. J. Sackett Co., which will also supply and install dry-mixing equipment for the plant.

The wet-mix plant consists of an 80 by 200-foot clear-span, steel-frame structure, 19.5 feet high to the eaves; a connected 50 by 70-foot clear-span steel-frame structure, 41 feet high to the eaves, and a 20 by 240-foot lean-to.

The plant is scheduled to be completed during the fourth quarter of this year.

Engineering Lab to Go Up At Monsanto's Nitro Plant

Monsanto has announced plans for building a four-story engineering research laboratory at its Nitro, W. Va., plant for process and engineering in the field of agricultural chemicals. Rubber chemical, oil additives, and synthetic detergents will also be under study there.

Eight technologists will staff the laboratory upon completion in the middle of next year, but provision will be made for possible expansion up to 15.

On The Cover

Secretary of Agriculture Ezra Taft Benson

Secretary of Agriculture Ezra Taft Benson is no newcomer to agriculture. A farmer himself, Benson studied agriculture at Utah State Agricultural College and Brigham Young University, taking a master's degree in agricultural economics at Iowa State.

After graduation, he became a county agent in Idaho and, by the time he was 30, the University of Idaho's extension service economist and marketing specialist.

From 1939 to 1944, he was executive secretary of the National Council of Farmer Cooperatives, an organization of over 50 farm groups.

In addition, he is a member of the American Marketing Association and the Farm Economics Association.

With this background, Secretary Benson brings to his cabinet post a knowledge of good farming practices and a healthy respect for the contributions of research to good farming.