

profile...

The "dean of fertilizer technology" feels industry is to be congratulated for its scientific development

WERE AN ELECTION to be staged for the purpose of naming a "Dean of American Fertilizer Technology," surely one of the leading candidates would be K. D. Jacob of USDA. Throughout a career in fertilizer study that has already spanned nearly 40 years, Jacob has contributed immeasurably to the science, the technology, and the literature of fertilizer chemistry.

Jacob entered the fertilizer field more by chance than by plan, when he went to work at "Nitrate Plant No. 1" in the War Department's synthetic ammonia plant at Sheffield, Ala. That was early in 1919. A month later the government closed the plant, and Jacob's entire group was transferred to the Arlington Farms (Va.) experiment station, to conduct ammonia catalysis research.

That group was headed, incidentally, by Captain Harry A. Curtis, who also has figured prominently in the advancement of fertilizer technology. Curtis has only recently stepped down as a director of the Tennessee Valley Authority.

In March 1919, Jacob moved over to the Fixed Nitrogen Research Laboratory when it was organized, under the War Department, at American University in Washington, D. C. His research there was chiefly on calcium cyanamide and other nitrogen fertilizers. Three years later he returned to Arlington with the USDA's old Bureau of Soils; he has since moved through a progression of assignments, job classifications, and titles until he is now top man in the department's fertilizer unit. Another change in title is coming up, since the Fertilizer and Agricultural Lime Section, which he heads, is being renamed the Fertilizer Investigations Research Branch.

A formal listing of Jacob's present duties and responsibilities makes him sound like a one-man task force for the development and dissemination of fertilizer knowledge. A more appropriate designation would be task-force director, since few of his assignments are of a solo nature, and the building

of a competent staff has been one of his important achievements.

Of all the fertilizer chemistry research projects in which he has been engaged, perhaps the most far-reaching from the utilitarian point of view is his collaborative work on the defluorination of phosphate rock. The process he helped to develop, involving the high temperature reaction of fluorapatite, silica, and steam, is the basis for present industrial production of defluorinated phosphate rock.

Other advances in which he had a hand include ammoniation of superphosphate, development of high-analysis mixed goods, fertilizer granulation, and the development of urea-formaldehyde products.

Through more than 150 publications during his career, Jacob has contributed—perhaps more than any other individual—to the distribution of information about fertilizer raw materials, processes, and finished products, and about the benefits of proper fertilizer usage. For 35 years he has served as an abstractor for *Chemical Abstracts*; during nearly half of that time he was a section editor.

In Demand As Consultant

His broad knowledge of every facet of fertilizer technology and use has placed him in great demand as a consultant both nationally and internationally. It has brought him in addition a number of special assignments, including participation in post-war missions to Germany, Japan, South Korea, and the Ryukus, to investigate the status of fertilizer technology and use in relation to food production problems. In 1951, he was U. S. delegate to the Latin American Meeting on Fertilizer Production, Distribution, and Utilization, staged at Rio de Janeiro by the Food and Agricultural Organization of United Nations.

Jacob has been active in the AMERICAN CHEMICAL SOCIETY, American Society of Agronomy, and the Association of Official Agricultural Chemists.



K. D. Jacob

Born Dec. 17, 1896, Carpenter, Miss. B.S. (1918), Miss. State College; M.S. (1926), George Washington Univ. Pvt. Chemical Warfare Service, U. S. Army, 1918. Chemist, Fixed Nitrogen Research Laboratory, 1919-22. Ass't. Chemist, Fertilizer Research USDA, 1922-24; Assoc. Chemist, 1924-30; Senior Chemist, 1930-44; Principal Chemist, 1944-47; Head, Fertilizer and Agricultural Lime Section, Soil and Water Conservation Research Div., USDA, 1947 to date. Member, ACS, AOAC, Soil Science Society of America, American Society of Agronomy. In 1950, elected hon. member, The Fertiliser Society (London). Superior Service Award, USDA, 1947.

Since 1946 he has been associate referee on phosphorus in fertilizers for the AOAC, and in 1956 he served as the organization's president.

A stalwart proponent of the increasing application of science to fertilizer manufacture, Jacob is immensely pleased with the industry's technological progress. "Particularly in the past 15 years," says Jacob, "fertilizer manufacturers have made tremendous technical strides. Modernized management, increasing reliance on the services of technically-trained personnel, and the swing to up-to-date practices and plants have led to better products and better processes. And all the while," Jacob notes, "costs have been held to relatively low levels. The industry is to be congratulated for its performance."

This compliment the industry returns with interest. Fertilizer men throughout the country—indeed throughout the world—hold Jacob in highest regard. He enjoys the confidence of the industry to a degree that is rarely if ever equaled, and high praise has come to him from every quarter of the fertilizer field.