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Four decades of service have earned Sam Thornton the admiration of the entire fertilizer industry

IF THE FERTILIZER INDUSTRY is doing as good a job in process and product control as it was 20 years ago, then it has made progress on its problems. This is the opinion of S. F. Thornton, who will soon complete 20 years of association with the F. S. Royster Guano Co., and has already worked more than 40 years in and around the fertilizer industry.

Basis for Thornton's unusual views on progress is the extensive change that technology has wrought. The fertilizer industry today bears little resemblance to that of 20 or 30 years ago, he says, and its more concentrated and refined products are only distantly related to their predecessors. Preventing the increasing complexity of the business from getting the upper hand is in a real sense progress, he feels.

As director of chemical control and farm service at Royster, Sam Thornton performs the functions of both chief chemist and chief agronomist. In both capacities, he tangles with some of the industry's knottiest problems.

The toughest problem, and one that seems never to fade, is price, a matter that is out of his sphere. Next in order he places education—the problem of selling farmers on the use of fertilizers at the most efficient level. The agronomic portion of Thornton's duties enables him to engage to some extent in this educational activity, but brings him into contact with only a small fraction of the farmers he would like to meet, and usually those with problems. Some years ago he reached larger numbers of growers, somewhat indirectly, through his work—primarily in education—as a member of the old American Plant Food Council's agronomic advisory committee.

From the technologic point of view, Thornton's candidate for No. 1 manufacturing problem is granulation—obtaining the facilities, developing the techniques, and absorbing wherever necessary the extra costs.

Thornton has been dealing with problems in the fertilizer industry since 1916, when he was graduated from Clemson Agricultural College. His first job after graduation brought him his first introduction to the fertilizer industry. As an analytical chemist in a commercial laboratory, at \$50

per month, he found himself engaged frequently in fertilizer work. But after one year, attracted by greener pastures (\$1100 per year) in Indiana, he moved to Purdue University, and a position in the state chemist's department. As deputy state chemist, he was in charge of fertilizer control, his first total connection with fertilizer problems.

Whether it was recurring northern winters or a recurring desire for economic improvement, he left Purdue in 1920 and moved to Savannah, Ga., as fertilizer chemist for the Southern States Phosphate & Fertilizer Co. During World War I, Thornton recalls, the fertilizer industry had been temporarily very prosperous, and research or control chemists had been able to secure money for their pet projects with relative ease. The bottom dropped out rather suddenly, however, and by Oct. 1 in 1920, he "couldn't get a penny." His company dropped its traditional 20% bonus, and cut all salaries 30%. Thornton returned to Indiana.

First as plant chemist, and then as plant superintendent, he spent three years with the Calumet Fertilizer Co. of New Albany. Next he worked briefly with Paul Smith Laboratory, a commercial lab in Indianapolis.

By this time, after working chiefly in analytical chemistry in the agricultural field, Thornton had perceived that the career possibilities in this line did not measure up fully to his ambitions for himself, and he determined to go back to school. He entered Purdue for graduate work, simultaneously serving on the research staff. He earned his M.S. in 1930 and his Ph.D. in 1935 in agricultural biochemistry, studying under the late Henry R. Kraybill. In 1937, he transferred to the agronomy department as experiment station soil chemist.

A year later, Thornton moved to F. S. Royster as agronomist. He operated entirely in the agronomic field until 1945, when he took over the additional functions of chief chemist. Royster's activities are spread through 21 states, and Thornton spends some 50% of his time on field trips, covering the company's territory as frequently as he is able.

While at Purdue, Thornton had conducted research on the Neubauer and other methods of determining fertilizer



S. F. Thornton

Born April 1895, near Lockhart, S. C. Clemson Ag. Coll., B.S. in agr. chem., 1916. Purdue Univ., M.S., 1930, Ph.D. 1935, in agr. biochem. Chemist, Parker Laboratories, 1916-17. Ind. Deputy State Chemist, 1917-20. Fertilizer chemist, Southern States Phosphate & Fertilizer Co., 1920-21. Chemist, plant superintendent, Calumet Fertilizer Co., 1921-24. Chemist, Paul Smith Laboratory, 1924-27. Purdue Univ., graduate school, research, experiment station agronomy, 1927-38. F. S. Royster Guano Co., director of farm service (chief agronomist) 1938 to date; director of chemical control (chief chemist) 1945 to date.

needs of soils. He did some work also on plant tissue tests and quick soil tests of the types that have in recent years replaced the older, slower methods.

Sam has long been active in the ACS Division of Fertilizer and Soil Chemistry. He served as secretary in 1950-51, and chairman in 1951-53, and was among those who helped bring about a change in emphasis from control analysis to fertilizer technology in its meeting programs.

He is still, however, vitally interested in quality control. He is in charge of the Magruder check sample program, through which some 130 industry, state, and USDA labs cooperate to compare methods and check their accuracy. Thornton distributes the monthly samples, and tabulates and distributes the analytical results.

Thornton's frequent contact with farmers and farm problems has convinced him that the fertilizer industry's greatest challenges and greatest potentialities still lie ahead. All that is needed to get the industry off its sales plateau of the past three years, he observes, is to get farmers to use the other half of their state recommendations. Industry sales have tripled in the past 15 years, he notes, and they could triple again within the next 25.