

# profile...

## **General Chemical Division of Allied Chemical & Dye has 50 years of background in pesticides. The experience has strengthened a sense of the importance of new product development**

SINCE GENERAL CHEMICAL was founded in 1899, its policies have stressed the development and improvement of products. This is essential in the rapidly moving pesticides industry of today, where products are developed and placed in commercial production, only to be replaced by newer and more effective materials in a short period of time.

General Chemical was a major unit in the consolidation of companies, in 1920, which formed Allied Chemical & Dye Corp. General itself had been created in 1899 by a combination of 12 heavy chemical producers whose activities were centered around the production of sulfuric acid, but which together were making only 15 different chemical products.

### **Ag Chemicals Seeds Planted in 1900**

The seeds for General's venture into the insecticide and fungicide industry were planted in 1900 with the acquisition of the Thomsen Chemical Co. of Baltimore. In 1906, what was still Thomsen began producing a lime sulfur solution for the control of San Jose scale, an importation from the orient which was causing widespread loss of fruit trees. Up to that time most of the practices of fruit raising were according to the whims of nature. But, federal and state agricultural agencies had begun their program of grower education and simultaneously the first effective agricultural aids were appearing on the market. Thomsen continued to produce insecticides and fungicides under its name until 1917, at which time it became completely identified with General Chemical.

Success in combating San Jose scale did much to educate growers in the value of science as an aid for producing better crops. Demands for insecticides began to increase. Additional General Chem-

ical products were developed during the early 1900's including lead arsenate, Bordeaux mixture, and "atomic sulfur." These products still find application today.



The President . . .

**M. M. Biddison**

### **New Products for New Problems**

Having already marketed several successful insecticides, General turned to research as a means of finding more and better materials. Some of the products developed were an oil emulsion for dormant spray of fruit trees, calcium arsenate, and basic, "astringent", and flat particle lead arsenate. The astringent arsenate product produced better results against codling moth than did the customary lead arsenate. It found particular acceptance in the apple growing regions of the Pacific Northwest.

By the end of 1939, General was offering 65 different products covering a wide range of arsenicals, copper, rotenone, and other insecticides and fungicides as well as certain specialties to aid growers in their work. With the advent of organic agricultural aids after World War II, the number of pesticides now marketed by the division exceeds 150 products. Most are identified under the "Orchard Brand" trademark which is widely known in the field.

A search for an insecticide not poisonous to humans, thus reducing the residue problem, yet with a high degree of insect control led to the development of one of the first commercial organic insecticides, xanthone, which was put on the market as genicide in 1939.

Manufacturing facilities are located at Baltimore; Bay Point and El Segunda, Calif.; Greenville, Miss.; Marcus Hook, Pa.; and New Orleans. In addition, General maintains over 40 warehouses throughout the country's agricultural areas.

### **Organic Agricultural Aids Are Major Items**

Since World War II, organic insecticides, fungicides, and herbicides have become increasingly important. The list of products supplied by General includes: DDT, benzene hexachloride (BHC), lindane, parathion, organic miticides, weed killers, and cotton sprays. Several inorganic products are also produced including sodium bisulfate for addition to silage as a preservative aid.

General became involved in DDT production as a result of a request, during World War II by the War production Board, for the immediate production of this chemical. Commercial production facilities simply did not exist anywhere in the world.

In February 1944, the division was asked to supply 25,000 pounds of the then vital chemical by late summer. This meant that General had to develop an entirely new process, design a plant, and put it into operation without the customary research that goes into the manufacture of a new product. The new unit supplied 5000 pounds of DDT by June. The output for this plant had climbed to a quarter of a million pounds per month by November 1945.

### **DDT for Civilian Use**

As a consequence of the revelation of DDT's potentialities as an agricultural insecticide, when its production was released from military commitments, General began production of a number of DDT-containing insecticides. These included Genitox dust spray powders, emulsifiable concentrates, and Genicop spray powder. These products found

application on vegetables, cotton, fruits, and ornamentals.

Another important product produced by General was BHC. It was added in 1946 to combat spittlebugs on forage crops and certain insect pests on cotton and is still prepared as a dust spray, spray powder, or emulsifiable concentrate.

More recently, General developed a formulation of TDE to combat hornworm and budworm on tobacco. It also has application on apples for the control of red-banded leaf roller. The insecticide acts in two ways: as a contact poison and as a stomach poison, and provides good residual control.

Among the many more organic agricultural aids produced by General are cotton sprays containing toxaphene, aldrin, dieldrin, and endrin. Also several agricultural miticides such as Ovex and Aramite are formulated. Weed killers and defoliants include 2,4 D amine, Sinox PE, Alanap-1, and MH-40 (maleic hydrazide).

In addition General's agricultural department manufactures a number of inorganic products for various uses. These materials include arsenical products, mercury sprays, diatomic sulfur, lime sulfur, copper sulfate, and potassium cyanate.

One of the more interesting products being produced is silage grade sodium

bisulfate—Sta-Fresh. It is manufactured exclusively at the Marcus Hook plant and sold for the maintenance of better appearance and odor in silage. The product ties in directly with significant developments of grassland farming. It has been used successfully with the popular grass forages, and also with corn, oats, and sorghum.

#### **Research Leads the Way**

Probably no part of the chemical and agricultural industry is in a more constant state of flux than manufacturers of insecticides, fungicides, and weed killers. Products which are the "last word" today become obsolete within a few seasons as competitive laboratories strive to develop new and better products.

Because of heavy competition, General realizes that it must maintain a strong research arm. Recently, the division has opened an extensive new laboratory at Morristown, N. J. The facility is devoted to product development and process improvement. The building is equipped for work with radioactive substances, has extensive analytical and physical chemistry facilities, and the most modern spectrographic, optical, and physical testing equipment. An entire section is engaged in agricultural chemical research

dealing primarily with product formulating, physical testing, and developing new materials.

General's research with agricultural aids and related chemicals is continuous both at the laboratory and in the field. The latter includes experimental and development work conducted at General's own test plots in various parts of the country and at state and federal experiment stations.

Among the more recent developments of General's research is Genite 923, which is claimed to be an outstanding miticide for orchard crops. Unlike some miticides, it is effective against all stages of mites: colon eggs, young and mature. The product is reported as unusually efficient in pre-bloom applications when used alone or with worm and fungus controls. It is also used in combination with worm sprays after bloom but gives such thorough pre-bloom control that in most cases later mite sprays are not necessary. It has been used commercially on the West Coast for several seasons and will be available in other fruit growing areas in 1956.

Besides its agricultural interests, General Chemical has long been a leading producer of sulfuric and other mineral acids, inorganic salts, and Genetron organic fluorine compounds. General is also a primary manufacturer of laboratory reagents and fine chemicals.

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