Present Status of Sesame Breeding in the United States

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SESAME may find a place as an important oilseed crop in this country, when satisfactory indehiscent (non-shattering) varieties are available. If sesame seed can compete on a price basis with the established oilseeds, it will be readily accepted by the oilseed processing industry. Sesame oil is a superior edible oil because of its high quality and stability, and the meal is an excellent protein supplement for livestock and has possibilities in human foods. Considering the short time interval involved, excellent progress has been made toward the development of varieties adapted to mechanized harvest, but none is commercially available at this time. Certain problems such as disease and insect resistance, the adaptation of existing farm machinery to sesame culture and areas of adaptation are being studied. Sesame appears adapted to the South and Southwest and perhaps to the Southern Great Plains. While a definite attempt is being made to solve the problems which always accompany the introduction of a new crop, concurrently with the breeding of indehiscent sesame, certain problems are likely to present themselves only after commercial acreages are grown.

INTRODUCTION

Research on sesame is new in the United States, the present surge of interest beginning in the early 1940's. But sesame as a crop and as a source of edible oil is quite old in some parts of the world. Sesame was one of the first of the oil seeds domesticated by man. The recent discovery of a single mutant gene opened the possibility of complete mechanization of sesame production. This may make possible the transformation of sesame from a crop grown only in the economically retarded areas of the world where human labor is cheap, to a crop that may take its place in the highly mechanized agriculture of the United States.

The joint state-federal sesame improvement program is informally organized on a regional basis with headquarters at College Station, Tex. A considerable portion of the pioneer work in sesame breeding has been done at the South Carolina station, and that agency has helped preserve the continuity of research during periods when interest was fluctuating at other locations.

Several other agricultural experiment stations, the Southern Regional Research Laboratory, the Educational Service of the National Cottonseed Products Association Inc., and Rio Farms, Inc. (a non-profit organization located in the Lower Rio Grande Valley of Texas) also have made significant contributions to the regional sesame research program.

Breeding material obtained from the Nebraska Station has been particularly useful. There has been active exchange of breeding material, information, among plant breeders, chemists, nutritionists, pathologists and others working with sesame in this country and abroad during the past 10 years.

TAXONOMY AND GEOGRAPHIC ORIGIN

The cultivation of sesame dates from time immemorial in the hotter drier parts of Africa and from the shores of the Mediterranean across Asia Minor to China and Japan.

The genus Sesamum belongs to the small family Pedaliaceae, which consists of 16 genera and 60 species, found in subtropical and tropical regions. In the genus Sesamum there are cultivated S. indicum, at least 16 wild species in India. Various authorities disagree as to whether sesame originated in Africa or India.

WORLD PRODUCTION AND TRADE

China, India, and Burma produce the bulk of sesame, but the crop is also grown more or less widely in Manchuria, the Anglo-Egyptian Sudan, Nigeria, and the Soviet Union, and Latin America. Increased acreage in Venezuela, Colombia, and Nicaragua have large potential in the Orient, so that world production has remained constant in recent years.

Before World War II, the annual world acreage was roughly estimated at 11,500,000 with production of 80,000,000 pounds. This low yield, 261 pounds per acre, was due to agricultural methods and to the fact that sesame is grown as a minor crop in some oriental countries.

World trade in sesame, which formerly accounted for 10% of total production, has decreased in recent years. The imports of sesame seed have varied from 146 million pounds in 1934 to over 2 million pounds in the war years. Of this, most of our imports came from China; we now rely on Latin American countries for our requirements.

PRODUCTION IN THE UNITED STATES

Sesame has never been grown on an extensive scale in the United States. It was grown in the Southeastern States about the 17th century by Negro slaves, who had brought it with them from Africa. Sporadic attempts to bring sesame into commercial production during the past quarter-century in California, Arizona and South Carolina have not been successful because of the excessive hand labor required in the dehiscent (shattering type) varieties available to date.

In 1952, there were a few small semi-commercial plantings of non-shattering type sesame in various parts of the country. In 1953, 2,000 acres of similar material may have been grown. Most of this acreage is in Texas with smaller patches in South Carolina, Arizona, California, and Kansas.

Uses