

CROPS DIVISION PROGRAM

Abstracts

(Alphabetical by Authors)

Section I

Breeding, Genetics and Cytology

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The Development of New Wheat Varieties for Mexico. N. E. [REDACTED] and J. A. Rupert, Rockefeller Foundation, Mexico, D.F., Mexico.

Wheat is grown in Mexico under a wide range of climatic and soil conditions, from near sea level on the Pacific Coastal Plain up to 10,000 ft. in the valleys of the Mesa Central. It is cultivated from the California border (32° latitude) and the Rio Grande (29°) on the North, to some of the higher valleys in Chiapas (16°) in the South. All of the Mexican varieties, except Mentana, are of obscure origin. All are of spring habit but are grown as a winter crop from fall plantings under irrigation.

On the basis of climatic, soil, agronomic and pathologic considerations, Mexico can be divided into four fairly distinct wheat producing areas. The breeding problems are very different in each zone and factors that are of primary importance in one region are of little importance in other areas. Varieties which will combine earliness, good stem and leaf rust resistance and good resistance to lodging and shattering, are being developed for the West Coast. In La Laguna, where rust is not a factor, late maturing varieties with good resistance to lodging and shattering are needed. The Bajio area, where the soils are poor and climatic conditions are less conducive to lodging and shattering, mid-late varieties with good resistance to stem rust are being distributed. Varieties for the high valleys of Central Mexico must combine earliness with good resistance to both stem and stripe rust. The development of very early maturing varieties with good stem rust resistance plus the use of 2,4-D to control weeds, has made it possible for the first time to grow considerable acreages of wheat during the rainy season in the higher valleys.

From numerous crosses which have been made, the lines which combine highest yield, best agronomic type, earliness and good stem rust and stripe rust resistance, have come from Kenya x Mentana and Newthatch x Marroqui. The best source of leaf rust resistance is "Supremo", a variety selected from the cross Surpreza x (Hope x Mediterranean). The best resistance to shattering has been found in South American wheats.

Seed Dormancy in Oats as Affected by Maturation and Storage Conditions. A. R. Brown, Wisconsin Experiment Station.

Seed dormancy in cultivated oats was studied for the purpose of determining some of its physiological aspects and how it might be incorporated into oat selections at the Wisconsin Station.

Duration of dormancy of several varieties as affected by three stages of harvest was studied for a period of three years. Lack of germination after five days in moist blotters was used as a measure of dormancy. Dormancy or the after-ripening period was prolonged by immature harvesting. Of the varieties tested, Vicland had the most dormancy, Bonda, Clinton and States Pride the least and Forvic was intermediate.