Chapter 1

World Importance and Distribution

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I. Relative Importance As a World Crop

IN WORLD PRODUCTION oats rank fourth among all cereals, being exceeded only by wheat, rice, and corn (maize). Figures compiled by Smith et al. (1956), of the United States Department of Agriculture, for 1955 indicate that the total annual world oats crop is approximately 4 billion bushels, or some 64 million short tons. The world acreage planted to oats fluctuates somewhat but averages around 130,000,000 acres. The diversity of varietal types makes possible the successful cultivation of oats over a wider range of climatic conditions than is possible for any other cereal. The factors of primary importance in oat production are moisture, temperature, soil, diseases, and insect enemies. Among these, climatic factors rank first. According to Smith et al. (1956), in Agricultural Statistics 1955, the average world acreages for the 5-year period, 1945–49, for the five leading cereals were as follows: wheat—339,970,000; corn—213,740,000; rice—175,377,000; oats—129,010,000; and barley—110,070,000 acres.

II. Climate and Soils

Briggs and Shantz (1914) and Shantz and Piemeisel (1927) indicate that oats require more moisture to produce a given unit of dry matter than any other cereal except rice. As a result, oats are especially vulnerable to injury by hot, dry weather, particularly from the early heading stage through the kernel production. Consequently, as stated by Hunt (1909), Warburton (1910a), Martin and Leonard (1949), and others, oats are best suited to cool, moist climates. This was not a new observation, as Gerard (1597) states, “Otes are drie and somewhat cold of temperature, as Galen [130–200 A.D.] saith.” Salmon (1941) reports that small grains in North America are grown where annual precipitation ranges from 15 to 45 inches, but most extensively where it does not exceed 30 inches. He also states that the upper and lower limits are not well defined and that other factors such as plant diseases are potent in determining adaptation. Coffman (1954) found the greatest area of oat production in North America to lie north of the line where average June temperatures are below 65° F., or area 9 from Fig. 3, Van Royen (1954). He also indicates that the area of winter oat culture lies to the south of the –5° (December–February) isotherm. Reference to Figs. 1, 2, and 3 will indicate the relationship of climate to oat production throughout the world.