The Origin of Narragansett Alfalfa

T. E. Odland and C. R. Skogley

NARRAGANSETT is a new variety of alfalfa originated at the Rhode Island Agricultural Experiment Station. It is a vigorous and hardy hybrid that produces heavy yields of forage, particularly in the Northeast. Many reports of a similar performance have been received from other sections of both the United States and Canada. On the basis of this performance it was admitted to the National Foundation Seed Project in January 1951. Seed of this variety is being increased through this Project and various state certified seed programs. It is anticipated that a limited quantity of certified seed will be available for planting in 1953 and that by 1955 several million pounds will be produced. A brief history of the origin of this variety and the methods used in developing it are presented.

The need for a variety of alfalfa that would persist and yield better than existing varieties had long been recognized in the eastern United States. At the time that the alfalfa breeding program was begun at the Rhode Island Station in 1929, Grimm and Canadian Variegated were the most successful varieties available. Ranger, Buffalo and Atlantic had not yet appeared. Neither Grimm nor Canadian Variegated were sufficiently vigorous or persistent under the eastern conditions to satisfy the grower. The breeding work was undertaken in the hope that something better adapted might be produced.

Narragansett alfalfa is characterized by a spreading to upright growth habit. The flower color is predominantly blue but varies from white through yellow to blue with many flowers of a greenish-blue shade. It has a much-branched root system that resists heaving of the plants following an unfavorable winter. It has a considerable resistance to leaf spot and other foliar diseases. It is apparently more resistant to wilt than Grimm but more susceptible than Ranger or Buffalo. Narragansett is a good seed producer under favorable conditions.

MATERIALS AND METHODS

Parent Material

The breeding program was begun at the Rhode Island Agricultural Experiment Station in 1929. In 1928, several alfalfa varieties was brought to Rhode Island from the West Virginia Agricultural Experiment Station. During 1929 plants were selfed in the field. Some open-pollinated seed was obtained from outstanding plants in an old field of Grimm alfalfa located at the Experiment Station. In the following years, additional different alfalfa varieties was obtained from other stations, the U.S. Department of Agriculture, and private individuals.

The varieties and selections of alfalfa used in the breeding program, their designation, the year in which first selfed, and number of years selfed are given in table 1. Only those plants which exhibited desirable traits were selected for selfing or used after being selfed. The characteristics upon which selection was based were vigor, growth habit, size and number of stems and leaves, disease incidence, seed set, and yield. A freezing chamber with a controlled temperature of —30° to —34° C was used to test the seedlings for cold resistance.

Crossing Procedure

The crossing procedure was started in the greenhouse in early 1934. Table 2 lists the important crosses, the year they were made, and the designation of the first filial generation. All selfed selections were generally used in making the crosses, and only the outstanding progenies were retained. During the breeding program all undesirable material resulting from the crosses was discarded. Particular attention was given to vigor, winter-hardiness, and seed habit. From a total of several hundred crosses, less than 40 were retained for further study.

Most of the selections resulted from the selfing at the Rhode Island Station. Five M. falcata lines came from the United States Department of Agriculture, several hybrids