

Varietal Identification Key to Success In Production of Superior Alfalfa

Assurance of varietal purity and identity in alfalfa seed is essential if farmers who plant this important pasture, hay and soil building crop are to realize maximum benefits from improved varieties developed by plant breeders, according to tests carried out by the Agricultural Research Service, of the U. S. Department of Agriculture, and co-operating State agricultural experiment stations.

Commenting on results of cooperative trueness-to-variety tests Dr. Karl Quisenberry, assistant administrator of the agricultural Research Service, explains that appearance alone is not an indicator of genetic purity and identity in seed. In fact, he says, even an expert cannot tell by looking at alfalfa seed whether they have the improved characteristics that have been built into them by plant breeders—such as high yield and seedling vigor in Narragansett, stem-nematode resistance in Lahontan, wilt resistance and high yield in Vernal, Ranger, and Buffalo, or other good qualities that are a part of the genetic make-up of such improved varieties as Calverde and Williamsburg alfalfas.

“That’s why use of certified seed, which insures varietal identity, becomes so important,” Dr. Quisenberry declares. “Based on cooperative tests carried out in Indiana and Minnesota during 1955 and 1956 on seed lots of certified Ranger and non-certified Ranger alfalfa, a farmer who purchases and plants seed of non-certified Ranger has less than a 50 per cent chance of getting seed of Ranger performance.”

Plant breeders have developed many varieties in recent years that have specific characteristics of special value to farmers. Ranger for example, is a variety having high yield, winter hardiness, and wilt resistance. Winter-hardiness in Ranger and similar varieties is indicated by late-fall regrowth characterized by a low growing “rosette” appearance as contrasted with the tall and erect

growth of nonhardy varieties. In the Minnesota-Indiana tests a standard of 80 to 99 per cent of the plants with fall regrowth of a rosetting type was found to be indicative of the Ranger Variety.

Only one of 21 lots of certified Ranger alfalfa seed tested failed to come within this standard of fall growth type. The one lot outside the satisfactory range had 78 per cent plants of the rosetting type.

On the other hand, 74 of the 163 lots of “non-certified” Ranger” tested failed to come within the standard of fall growth type.

Plant breeders and pathologists have also devised standard procedures for measuring wilt resistance in alfalfas. No variety is 100 per cent immune to wilt, although Ranger is a wilt resistant variety. In the Minnesota-Indiana tests cited by Dr. Quisenberry, a plant population with 33 per cent or less of the plants severely infected or dead from wilt was the standard for this character in Ranger alfalfa.

Only one of the certified seed lots that passed the test for fall growth type failed to meet the required standard for wilt resistance, with 40 per cent dead and infected plants. Among the lots of “non-certified” Ranger, “however, 16 of the 89 lots that previously had met the test for fall growth type had more than 33 per cent dead or infected plants after being inoculated with wilt.

Thus considering both fall growth type and wilt resistance only 10 per cent of the certified seed lots of Ranger failed to meet the required standards, while 55 per cent of the “non-certified” Ranger” seed lots failed to meet the standards for both these characteristics.

“Unless improved varieties, such as Ranger, are produced, harvested, and processed under properly controlled conditions,”

Dr. Quisenberry explains, “their superior qualities, such as high yield and winter hardiness, may be lost in the planting seed that becomes available to farmers for forage seedings. Special care is needed because varieties change unless precautions are taken. Seed certification is the best system so far devised to maintain the identity and superior performance that is put into the genetic make-up of the variety by the plant breeder.”

Information supporting the Minnesota-Indiana findings also comes from a series of trueness-to-variety tests conducted by the New York Agricultural Experiment Station over a six year period that included several hundred lots of certified and non certified seed. In these tests an extreme amount of type variation was noted in lots labeled Grimm alfalfa. By comparison striking uniformity was noted in certified Ranger alfalfa seed lots while some “non-certified Ranger” seed lots produced intermediate-type plants in respect to fall growth type.

These trials further show that unless the seed stocks for reproducing such winter hardy alfalfa varieties as Ranger are properly maintained, either by seed certification or by other effective means, they may eventually become as variable and undependable in performance as the old winter-hardy varieties such as Grimm.

“The lesson in these tests is clear,” Dr. Quisenberry concludes. “Any farmer who is planting Ranger alfalfa or any of the improved varieties of grasses and legumes should make sure that the seed he buys has been grown, processed, and marketed under procedures that will insure its varietal purity and identity. The best system—as the trueness-to-variety tests show—is seed certification.”

ANIMAL MORBIDITY REPORT FOR FISCAL YEAR 1957

The Special Disease Eradication Section of the Agricultural Research Service recently released its Animal Morbidity Report for Fiscal Year 1957 which shows how many herds of flocks were reported to have been infected with various diseases that year.

It shows that 124,115 herds of cattle, 42 herds of goats, and 1,337 herds of swine showed positive reaction to brucellosis; 6,161 herds of cattle, 24 herds of swine, and 21 flocks of poultry showed positive reaction to tuberculosis; anthrax infection was found in 149 herds of cattle and nine herds of swine; hog cholera was reported in 3,977 herds, vascular encephalomyelitis in 1,460, scrapie in 12, and blue-tongue in 215.

A total of 4,666 cases of rabies were reported, 1,929 of them in dogs, 281 in cats, 652 in cattle, 22 in equines, 17 in sheep and goats, 20 in swine, and 1,745 in wildlife.

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