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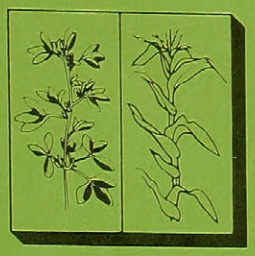

FORAGE AND SEED FACTS

Vol. 2, No. 3
May 18, 1977

ALFALFA GERM PLASM RELEASES

Kansas Agricultural Experiment Station and the ARS-USDA announce the release of *KS 76* alfalfa germ plasm developed by E. L. Sorensen, D. L. Stuteville and Ernst Horber. *KS 76* is resistant to bacterial leaf spot, bacterial wilt, downy mildew, anthracnose, summer black stem, pea aphid, and spotted alfalfa aphid. Over 95 percent of *KS 76* plants are resistant to bacterial leaf spot compared to 0.1 percent for Kanza. The bacterial wilt resistance is more than double that of Vernal. Under field conditions, downy mildew resistance was similar to Saranac. In field tests, anthracnose resistance of ARC and *KS 76* were not significantly different. The new germ plasm is moderately resistant to summer black stem. Pea aphid and spotted alfalfa aphid resistance of *KS 76* and Kanza are about equal. Spring growth was similar but recovery after cutting was slower than that of Kanza. Fall dormancy is intermediate between DuPuit and Saranac. Twenty-five grams of *KS 76* Syn II seed are available by writing Dr. Edgar L. Sorensen, Department of Agronomy, Waters Hall, Kansas State University, Manhattan, Kansas 66506.

Letter of Release Statement
March 25, 1977

Nevada Syn XX was developed cooperatively by the ARS-USDA and the Nevada, California, Oregon, Utah and Washington Agricultural Experiment Stations, as a source material for multiple pest-resistant cultivars. It is highly resistant to three regional collections of the northern root knot nematode (Meloidogyne halpa C.), showing no galling whereas Lahontan roots were heavily galled. At Manteca, California where M. hapla and other nematode species were prevalent, *Nevada Syn XX* had the highest stand density of 34 cultivars after two years of production. It was slightly less resistant than Washoe to Sp. alfalfa aphid biotypes Ent A (76%) and Ent F (68%) at Tucson, Arizona. Its resistance to stem nematode at Reno, Nevada was 71% compared to 74% in Lahontan. Its similar to Lahontan in winter dormancy. It is slightly less resistant than Ranger to bacterial wilt and also slightly less resistant than Agate to phytophthora root rot in tests at St. Paul, Minnesota. Six grams of seed may be obtained by writing to Dr. O. J. Hunt, ARS-USDA, P. O. Box 8858, University Station, Reno, Nevada 89507.

ALFALFA HAY AND SILAGE COMPARED BY U.S.D.A.

Dairy heifers fed alfalfa as hay ate 21% more dry matter than when fed alfalfa as silage according to Dr. H. Keith Goering Animal Scientist with U.S. D. A.'s Agricultural Research Service at Beltsville, Maryland. He compared feeding value of hay versus silage from alfalfa harvested at five different maturities. Early bloom is a commonly accepted stage for cutting alfalfa, a recommendation borne out by these tests.

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University of California and the United States Department of Agriculture cooperating.

Though energy digestibility is a greater at pre-bud and pre-bloom maturities, yield and persistence of stands are reduced. Likewise, by harvesting after early bloom, stands hold up better and yeilds are greater, but digestible energy is less. Harvesting at early bloom results in the best compromise between yield and energy digestibility.

Progressive Farmer, February 1977

REMINDER ON SALE OF VARIETIES PROTECTED BY THE FEDERAL PLANT VARIETY PROTECTION ACT

California now certifies many varieties of grain, beans, rice, and alfalfa that are protected under the Federal Plant Variety Protection Act (PVP), most of them under Title 5 of the Federal Seed Law that states that the variety can only be sold as a class of certified seed. Enough questions have come in from growers and seedmen that justify a reminder of this situation.

A farmer who is not in the seed business can sell a plant protected variety to his neighbor, but anyone who sells a variety protected under PVP Title 5 by name, unless it is a certified seed, is breaking a Federal law. These varieties are identified as protected on the seed tag.

California Seed Association Newsletter No.2, May 3, 1977

HAY PRESERVATION AND QUALITY IMPROVEMENT BY ANHYDROUS AMMONIA*

Workers at Purdue University have reported a study to determine the effectiveness of anhydrous ammonia (NH_3) as a preservative to prevent microbial activity and consequent dry matter and digestibility loss in hay that is intentionally or unintentionally stored at moisture levels above 20 percent. An effective hay preservative would shorten required drying time, reducing mechanical losses and risk of weather damage. Alfalfa, tall fescue, and ladino clover-tall fescue hays were baled at 16 to 33 percent moisture. Immediately, after baling, NH_3 was applied at 1 percent of the weight of the hay. Temperatures were taken for three weeks, and dry matter and digestiblily losses were measured and samples taken at baling and after two or three months storage.

All of the untreated hays with initial moisture contents above 32 percent became moldly, heated to 55 centigrade (131°F) or above and suffered significant dry matter losses, *in vitro* dry matter disappearance (IVDMD) and *in vitro* cell wall disappearance (IVCWD) during storage. Ammonium N, ADF, NDF, and ADF-N percentages increased significantly. Total N percentage of alfalfa hay increased significantly during storage.

NH_3 treatment reduced molding, heating and dry matter loss in stored hay. Significant increases in total N, ammonium-N and IVCWD occurred following treatment. IVDMD decreased during storage but remained higher than in untreated hay. Animals readily consumed the ammoniated hay. NH_3 has a potential to preserve hay that is too wet to store without a preservative. In addition, ammoniation may improve hay quality by increasing total N content and cell wall digestibility. Ammoniation of highly lignified, low N materials such as corn stalks, corn cobs or straw might significantly improve nutritional quality of these materials.

*W. R. Kampp, D. A. Holt and V. L. Lechtenberg
Department of Agronomy
Purdue University
West Lafayette, Indiana 47907

Agronomy Journal 67:766-769. 1975.

GRASSHOPPER-RESISTANT ALFALFA SELECTED IN THE FIELD*

Alfalfa plants resistant to differential grasshoppers, Melanoplus differentialis (Thomas) were obtained by selecting uninjured plants from a field of "Buffalo" alfalfa severly damaged by grasshoppers. Resistance was verified in greenhouse tests with either field-collected adults or reared nymphs. Resistance appeared partially effective against other grasshopper species. Plants selected for resistance differed agronomically from susceptible plants and, when grasshopper were absent, yielded more forage than did susceptible plants. The method of resistance was not determined, but apparently nonpreference was a major factor with antibiosis also involved. Further studies are underway at Kansas to determine relationship between plant type to resistance, and the practicality of resistance under field conditions.

*T. L. Harvey and H. L. Hackerott
Department of Entomology
Kansas State University
Manhattan, Kansas 66506

Environmental Entomology
5(3):572-574. 1976.

ALFALFA MEAL CONTAINS PLANT REGULATOR

S. K. Ries and coworkers of Michigan State University report that alfalfa meal and chloroform extracts of meal have increased the growth and yield of several plant species.

A crystaline substance identified as "triacontanol" increased the dry weight and water uptake of rice seedlings when sprayed on the foilage or applied in nutrient culture. Barley and corn grown in soil were also increased by sprays of the compound. Synthetic "tricontanol" produced a similar response over 1 to 100 miligrams per liter on rice grown in nutrient cultures and with foliar applications to tomatoes, corn, barley and alfalfa grown in soil. Increases in dry weight of whole rice plants and leaf area occurred within hours. After 24 hours of "triacontanol" treated rice increased 43% in dry weight compared to 22% for the control.

California Farmer, April 16, 1977

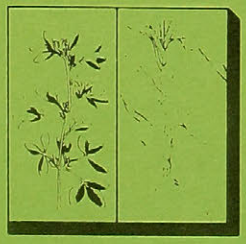
NEW PUBLICATIONS

GROWING ALFALFA IN MONTANA. R. L. Ditterline et al. Montana Agricultural Experiment Station Bulletin 684, April 1976

STANDARD TESTS TO CHARACTERIZE PEST RESISTANCE IN ALFALFA VARIETIES. D. K. Barnes et al. ARS-NC-19, September 1974. A.R.S., U.S.D.A.

SPRINKLER IRRIGATION. C. H. Pair. USDA-ARS Leaflet 476, December 1976.

CUSCUTA Species (Dodder): A literature of its biology and control. F. M. Ashton and D. Santana. UC Division of Ag. Science Bulletin 1880, August 1976.



FORAGE AND SEED FACTS

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