

REGISTRATION OF OTO INDIANGRASS¹

(Reg. No. 32)

L. C. Newell²

The Nebraska Agricultural Experiment Station and the Agricultural Research Service, USDA sponsored the development and release of 'Oto' indiagrass [*Sorghastrum nutans* (L.) Nash]. The forage cultivar resulted from cooperative research at Lincoln, Nebraska. It was released in 1970 for initial seed increase on farms.

Oto traces to nursery selections from a large number of seed collections of indiagrass obtained in 1953-54 from natural grasslands of southern Nebraska and eastern Kansas. The cultivar derives its name from the Oto Indians, who once lived in the area south of the Platte River in Nebraska. It was developed from the intercrossing of 100 leafy, late-maturing clones selected from 15 accessions. The seed increase in cultivated rows was designated breeder seed. The parent clones showed brown panicles and bred true for brown-glumed seed. Oto and other strains of indiagrass, bluestems (*Andropogon* sp.), and switchgrass (*Panicum* sp.) were included in replicated field trials in 12 counties from 1961 to 1969. Oto excelled in stand establishment and gave large forage yields, especially on the more fertile soil sites where soil moisture and length of season were not limiting.³

Oto indiagrass is a perennial warm-season bunchgrass, with maximum vegetative growth in mid to late summer. It is fine-stemmed and leafy in solid stands, but robust and erect for seed harvest in wide-spaced cultivated rows. Individual plants may exceed 50 cm in basal spread and 1.5 m in height. Leaves are long and bright green to dull green in color. Panicles are broad in anthesis, contracting after pollination into compact, golden to dark-brown heads. Maturity of forage and seed comes late in the season, with seed harvests at early frost dates from southern Nebraska plantings.

Oto is used primarily in mixed stands of warm-season prairie grasses, in which it plays a dominant role in conservation and forage plantings. It is especially recommended in mixtures with big bluestem, in which it is particularly productive and acceptable to livestock for mid and late-summer grazing. Its area of best use is centered in eastern and southern Nebraska, extending into the adjacent areas of bordering states, and westward and northward in the Platte, Loup, and Elkhorn valleys in Nebraska.

Seed stocks for seed production of Oto are maintained by the Nebraska Agricultural Experiment Station. Seed is produced and sold in a system of limited generations ascribed to breeder, foundation, and certified seed classes. There is no recertification of seed produced from the certified seed class, which is the commercial seed for conservation and forage plantings.

¹ Registered by the Crop Science Society of America. Cooperative investigations of the Agricultural Research Service, USDA and the Nebraska Agricultural Experiment Station, Lincoln, Nebraska. Published as Paper No. 3654, Journal Series, Nebraska Agricultural Experiment Station. Received Nov. 17, 1973.

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³ D. D. Warnes, L. C. Newell, and W. J. Moline, 1971. Performance evaluation of some warm-season prairie grasses in Nebraska environments. Nebr. Agr. Exp. Sta. Res. Bull. 241. 55 p.

REGISTRATION OF SLATE INTERMEDIATE WHEATGRASS¹

(Reg. No. 10)

L. C. Newell²

'SLATE' is a cool-season forage cultivar of intermediate wheatgrass [*Agropyron intermedium* (Host) Beauv.] developed in the cooperative grass improvement program of the Nebraska Agricultural Experiment Station and the Agricultural Research Service, USDA. The cultivar was released in 1969 for initial seed increase on farms.

Slate is a synthetic variety produced from two parental strains. A slate-colored strain of 'Nebraska 50,' developed from seed increase of 60 clones, and one of 'Amur,' from 57 clones, were selected as the complementary unrelated parent strains. Nebraska 50, widely grown from 1950 to 1965, was developed by selection from P.I. 98586, which originated in the Maikop region, U.S.S.R. Amur traces to P.I. 131592, introduced from the region of the Amur River in Manchuria, eastern Asia.³

Plants of Slate are strongly spreading by rhizomes. They show reasonable uniformity in height, leaf color, and time of flowering. Leaf blades are broad and flat, not strongly veined or rolled. As they mature, plants are slate-green in color, intermediate between the bright green and glaucous blue-green of other cultivars. The inflorescence is a well developed spike with multiflowered spikelets, usually with awnless glumes that are either glabrous or slightly pubescent. Occasional spikelets have glumes with short awns or awn points. Seeds, comprised of the grain and attached flowering glume, are large and frequently exceed 5 g per thousand in seed weight.

Slate is a winter-hardy perennial forage cultivar, replacing Nebraska 50 for seed production and use primarily in the central Great Plains. It is used principally as a cool-season pasture crop and sometimes as hay. In the central latitudes, growth begins early and extends into the summer grazing season, with good forage quality and acceptance by livestock. With available soil moisture and nutrients, regrowth also occurs in the fall months.

Slate shows good seedling growth and establishes well during the cool weather of fall or spring. Seed crops can sometimes be obtained in the first summer after fall establishment. Slate should be planted in rows for seed production and also for grazing if soil moisture is expected to be limiting. The strongly rhizomatous plants spread readily from rows with favorable soil moisture and fertility. Slate may be planted alone in close-drilled stands or in mixtures with other cool-season grasses on fertile, well-drained soil. It may be used as a principal component in mixtures with smooth brome grass (*Bromus inermis*

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³ A. A. Hanson, 1972. Grass varieties in the United States. USDA, ARS Agr. Handbook No. 170, Revised.

Leyss.) and alfalfa (*Medicago sativa* L.) for production of pasture and hay, either with or without irrigation. Plants of Slate will not thrive on saline-alkali soil or with extended periods of flooding.

Slate intermediate wheatgrass is produced with limited generations of seed increase. The two designated parent strains are

maintained separately in isolated field plantings by the Nebraska Experiment Station. The cultivar is constituted by the seed mixture of parent strains in equal amounts as breeder seed (Syn 0). Foundation seed (Syn 1) is harvested from fields established with breeder seed. Certified seed is grown solely from foundation seed. It is the commercial class for forage and conservation plantings.