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UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE
WASHINGTON, D.C

Releasing agencies:

AND

Name: ARS - 1°

UTAH AGRICULTURAL EXPERIMENT STATION
UTAH STATE UNIVERSITY
LOGAN, UTAH

NRCS - 2°

AND

UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE
BOISE, IDAHO

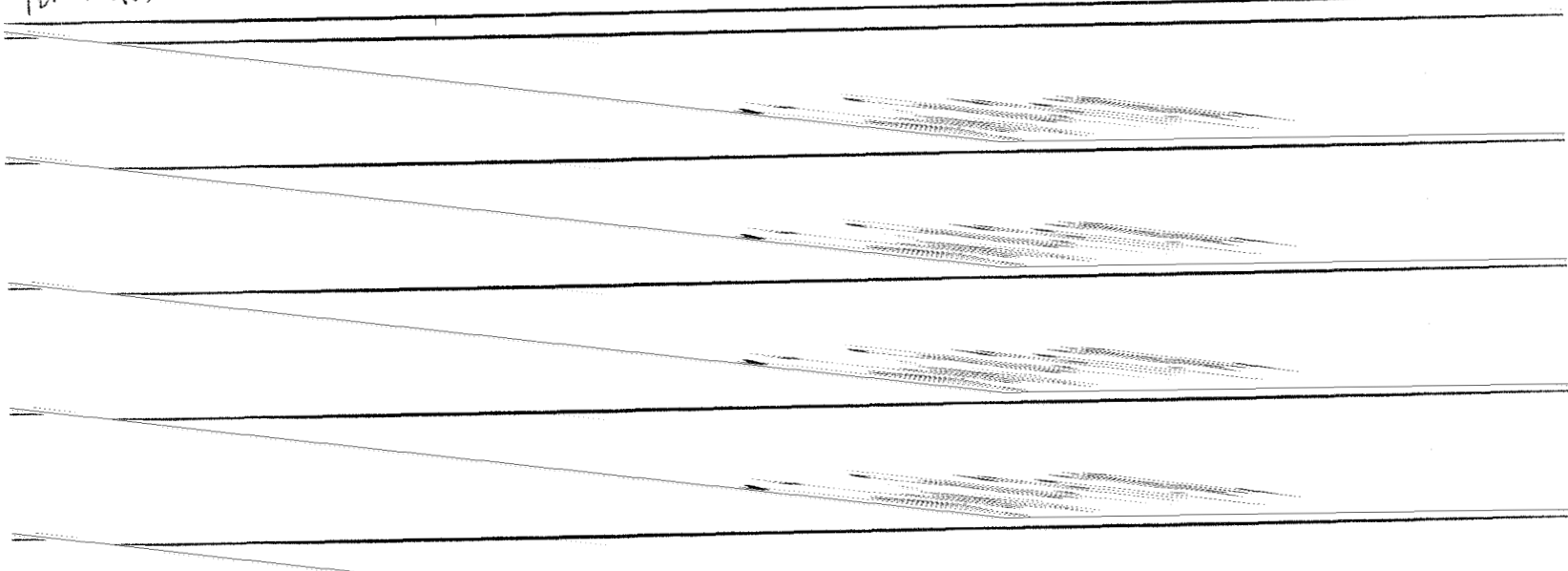
NOTICE OF RELEASE OF SAND HOLLOW SQUIRRELTAIL
SELECTED CLASS OF NATURAL GERMPLASM

The United States Department of Agriculture, Agricultural Research Service, the Utah Agricultural Experiment Station, and the United States Department of Agriculture, Natural Resources Conservation Service announce the release of Sand Hollow squirreltail (*Elymus elymoides sensu amplo*) Squirreltail is a short-lived perennial, early-seral species. Its ready germination, facultative fall emergence, rapid reproductive maturity, root growth under cold temperatures, self-pollinated mating system, excellent seed dispersal mechanisms, fire tolerance, and genetic diversity make it a promising candidate for assisting ecological succession for restoration of rangelands dominated by exotic weedy annual grasses such as cheatgrass and medusahead wildrye

Sand Hollow was originally collected in Gem County, Idaho (Township 6N, Range 1W, Section 21) on 12 July, 1984 by Greg Painter and Rich Edlund, then of the USDA-SCS district office in Emmett, ID The site is classified by USDA-NRCS as Major Land Resource Area B 10 (Upper Snake River Lava Plains and Hills) along the transition with B 11 (Snake River Plains) The collection was made from a Lolalita loamy coarse sand on a west-facing slope (35 percent) at an 830-meter elevation. Estimated average annual precipitation is 28 centimeters The original collection packet indicates that "6 or more" plants were included in the sample Associated species were bluebunch wheatgrass, sandberg bluegrass, and tapertip hawksbeard

Sand Hollow should be adapted to sandy soils throughout the Snake River Plain in southern Idaho and in adjacent regions to the south, east, and west in Idaho, Oregon, Nevada, and Utah Sand Hollow greens up early in the spring, produces a profuse number of reproductive tillers, flowers in an indeterminate pattern, and may grow up to 50 centimeters tall When greenhouse-raised seedlings are fall-transplanted they may reach reproductive maturity the following summer, but spring-transplanted seedlings produce few spikes the initial year Awns are found on the tip of each lemma as well as on 2 pairs of 4-cleft glumes per node, and on one floret per node reduced

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to a glume-like appendage. At maturity the awns diverge at right angles to the rachis, creating a bottlebrush-like appearance. If the spike disarticulates intact, it may disperse seed by rolling along the ground for long distances until a physical barrier is reached. Nodes of Sand Hollow spikes may also disarticulate individually from the top down as they mature. In this case, individual nodes carrying seed are more likely dispersed through the air. A high percentage of Sand Hollow seed is readily germinable the fall of the year of production, but some appear to have an afterripening requirement and probably would not be germinable until the following spring.

Sand Hollow and 36 other accessions from California, Colorado, Idaho, Montana, Nevada, Oregon, Utah, Washington, and Wyoming were established in a transplanted test site on a Millville silt loam at Greenville Farm, North Logan, UT in September 1993 and evaluated in 1994 and 1995. Sand Hollow exhibited the highest seed yield (8.7 versus mean of 2.8 grams/plant) and highest seed production (2023 versus mean of 718 seed/plant) averaged across two years, higher-than-average seed weight (4.3 versus mean of 3.9 milligrams/seed), and medium-late maturity as evidenced by seed harvest date in 1994 (5 July versus mean of 5 July) and heading date in 1995 (16 June versus mean of 2 June). In addition to its original collection site and the Millville silt loam test site, Sand Hollow has performed well on a Nibley silty clay loam near Richmond, UT.

Original seed was obtained in 1993 by the USDA-ARS Forage and Range Research Laboratory, Logan, UT from the USDA-NRCS Plant Materials Center at Aberdeen, Idaho. No intentional genetic selection has been practiced on the original collection. Sand Hollow is released as a Selected Class of certified seed (natural track). This alternative release procedure is justified because existing commercial sources of squirreltail are inadequate, propagation material of specific ecotypes is needed for ecosystem restoration, potential for immediate use is high, and commercial potential beyond specific restoration and reclamation objectives is probably limited. No commercial cultivars of squirreltail have been released at this time.

Generation 2 (two generations beyond the original collection) of Sand Hollow will be maintained as breeder seed by the USDA-ARS Forage and Range Research Laboratory, Logan, UT. Small quantities of Generation 2 Sand Hollow seed will be provided upon request. Genetic material of this release will be deposited in the National Plant Germplasm System where it will be available for research purposes, including development and commercialization of new cultivars. It is requested that appropriate recognition be made if this germplasm contributes to the development of a new breeding line or cultivar.

Laura E. Kiger
State Conservationist for Idaho
Natural Resources Conservation Service
U.S. Department of Agriculture

11/5/96
Date

Paul Cassmussen
Director, Utah Agricultural Experiment Station
Utah State University

10-25-96
Date

Adminstrator, Agricultural Research Service
U.S. Department of Agriculture

Date