Revegetation Equipment Catalog

Descriptions, applications, pictures, and sources for equipment used on rangelands.

Seed Harvesting

Grass seed can be harvested by several types of commercial machines. Hard slick seed is relatively easy to harvest while chaffy seed with awns and hairs that impedes the flow of seed through machinery is difficult to harvest. Timing of harvest is of utmost importance because seed development between medium dough and seed shatter can last from a few days to two weeks. Conventional grain combines are widely used alone or following swathing. Combining is a once-over treatment and must conducted when the greatest number of seeds are mature and remain on the plants. Brush harvesters have become popular for many of the chaffy seeded species. They can strip plants multiple times to capture seed crops that mature over a long period. Small plot combines and handheld units are also available. Seeds from shrubs are usually hand stripped and collected in lightweight hoops. Freshly harvested seed is usually high in moisture content and requires drying before processing to prevent damage to the seed.

Contents

Grain Combines

Description & Application

Conventional grain combines are useful for harvesting large-scale seed fields. These self-propelled combines are designed for major grain crops but can be adjusted to handle many types of grass seed. Recent models are highly instrumented, and the operator can control all cleaning functions from an air-conditioned cab. A combine consists of a header assembly, threshing mechanism, separating and cleaning unit, storage bin, power-train, and a cab with all the controls. The header assembly consists of a reel, cutter bar, and an auger. Grass stems are severed just below the seed heads by the cutter bar, and the seed heads are fed into the thresher by an auger. Seed is separated from the seed heads and transported into the storage bin, while stems and trash are blown out the rear of the combine. Some grass species are cut first with a swather to aid in field drying. A pick-up mechanism mounted on the combine's header is then used to gather the crop into the combine. Swathers and pick-up devices are marketed by combine manufacturers and independents. A specialized stripping header assembly that replaces the standard header has been used effectively by commercial grass seed growers. The seed heads are stripped rather than cut before entering the threshing section of the combine. Grain combines are suited for high-production, commercial, grass-seed farms, but they are very expensive. They are not suited for rocky, uneven terrain or grasses that are excessively chaffy.

Sources

The following manufacturers' websites list information on equipment sizes, accessories, dealers, and contact information.

AGCO Corporation
Duluth, GA 30096

Case IH Agriculture
Racine, WI 53404

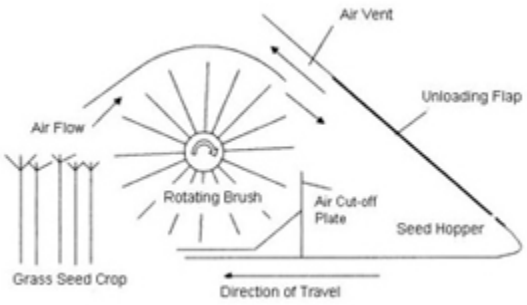
Deere & Company
Moline, IL 61265

MacDon, Inc. (Grass swather)
Kansas City, MO 64153-1832

New Holland North America
New Holland, PA 17557

Shelbourne Reynolds Inc. (Stripper header)
Colby, KS 67701

Brush Strippers



Description & Application

Brush strippers were developed to overcome problems in harvesting light, difficult-to-handle, chaffy seed. In 1981, Aaron Beisel developed the Woodward Flail-Vac Seed Stripper (U.S. Patent No. 4,373,322) to harvest mainly bluestem species (*Bothriochloa spp.*). His hypothesis was that a brush that rotated upward at the leading edge would result in less stem breakage and thus a cleaner product than would be possible from a brush that rotated downward. In addition, the air flow produced by the shroud-covered brush would gather seed heads into the flailing brush and carry the stripped seed to the seed hopper. The unit has become the standard for harvesting numerous grass species in the United States, Australia, and other countries. Stripper units attach to the front-end loader frame on a tractor and are available in 4- to 12-foot widths, 12 foot being the most common. Trailer models and hand carried units are also available. Strippers are well suited for use on commercial grass-seed farms as well as small acreages and research plots because they are simple and very cost effective. They are not suited for rocky or rugged terrain.

Additional Information

Dewald, C.L.; Beisel, A. 1983. The Woodward Flail-Vac Seed Stripper. Transactions of the American Society of Agricultural and Biological Engineers. 26(4): 1027-1029.

Loch, D.S.; Johnson, P.W.; Jensen, T.A.; Harvey, G.L. 1996. Harvesting, processing, and marketing Australian native grass seeds. New Zealand Journal of Agricultural Research. 39(4): 591-599.

Sources

The manufacturers' websites list information on equipment sizes, accessories, dealers, and contact information.

Aaron's Engineering
Fargo, OK 73840

Ag-Renewal, Inc.
Weatherford, OK 73096

Hand Stripping

Description & Application

Seed from some native shrubs and grasses are available only by hand stripping from plants in wildland stands. Hand carried power brush or flail strippers are practical for harvesting some grass and forb species. Vacuum units can be utilized also, provided the seeds do not strike the motor's impeller. Seeds (berries & fruits) from most shrubs are acquired by hand stripping. Collectors for hand stripped seed include bags, baskets, cans, tubs, and numerous homemade devices. Lightweight collector hoops made from strong ripcord cloth and plastic tubing plus a padded shoulder strap are versatile and popular for extended use. Badminton (grasses/forbs), tennis (shrubs) rackets, or short sticks are used to flail seed or fruits into the collectors. Handheld hoops are suitable for small and large patches and with an experienced operator can be effective and timely. They are used also in wetlands and other environmentally sensitive areas.

Additional Information

Jorgensen, Kent R. and Richard Stevens. 2004. Seed collection, cleaning, and storage, Chap. 24. In: Stephen B. Monsen, Richard Stevens, and Nancy Shaw (compilers), Restoring Western Ranges and Wildlands. USDA Forest Service Gen. Tech. Rep. RMRS-GTR-136, Ft. Collins, CO.

Sources

The manufacturers' websites list information on equipment sizes, accessories, dealers, and contact information.

Prairie Habitats, Inc.
Argyle, Manitoba, Canada, R0C O8O
204-467-9371

Research Plot Combines

Description & Application

Research plot combines are designed for organizations that harvest hundreds of small plots. These combines have the same features as the large grain combines except they are very narrow in width. They usually have special instrumented weighing systems to accurately records grain weight for each plot. They are designed for level cropland and should not be operated on rocky, rough, or sloping land.

Sources

The manufacturers' websites list information on equipment sizes, accessories, dealers, and contact information.

Almaco
Nevada, IA 50201-1558

Kincaid Equipment Manufacturing
Haven, KS 67543

Wintersteiger, Inc.
Salt Lake City, UT 84116