

## AGENDA

St. Johns Landfill Landscape Maintenance Meeting:  
May 20, 1993

### SJL VEGETATION MANAGEMENT PLAN

Establishment of sustainable native plant communities

Integration with adjacent natural areas

#### SUBAREA I (1993-1994)

##### A. Native Grassland Test Plot Tasks

- mowing-Spring 1993
- reseeding
- pest plant eradication
- monitoring

##### B. Covercrop Test Plot Tasks

- replant-Fall 1994

##### C. Shrub Test Plots

- irrigation-1993 & 1994
- fertilization/mychorrizal enrichment-1993 & 1994
- monitoring
- additional plantings-Winter 1994

##### D. Equipment needs:

- tractor w/three point hitch, selected farm implements, ATV, irrigation equipment and supplies

##### Labor needs:

- Full time land steward for Smith & Bybee Lake Management Area/St. Johns Landfill

#### ON-GOING OPERATION AND MAINTENANCE

##### A. Farming the landfill

- Native grass & woody plant production
- Pest plant management

RECOMMENDED PROPAGATION METHODS FOR WOODY & EMERGENT PLANTS FOR SJL  
REVEGETATION

TREES/SHRUBS

Acer macrophyllum (Big leaf Maple) SEED  
Alnus rubra (Red Alder) SEED  
Amelanchier alnifolia (Serviceberry) SEED/ROOT CUTTING  
Cornus stolonifera (Red Osier Dogwood) SEED/STEM CUTTING  
Corylus cornuta (Hazel) SEED/LAYERING  
Crataegus douglasii (OR Hawthorne) SEED  
Fraxinus latifolia (OR Ash) SEED  
Lonicera involucrata (Twinberry) SEED/STEM CUTTING  
Philadelphus lewisii (Mock Orange) STEM CUTTING  
Populus trichocarpa (Black Cottonwood) IN-SITU STEM CUTTING  
Prunus emarginata (Chokecherry) SEED/LAYERING  
Rhamnus purshiana (Cascara) SEED  
Rosa nutkana (Nootka Rose) SEED/STEM CUTTING  
Rosa pisocarpa (Swamp Rose) SEED/STEM CUTTING  
Salix lasiandra (Pacific Willow) STEM CUTTING  
Salix piperi (Piper's Willow) IN-SITU STEM CUTTING  
Salix scouleriana (Scoulers Willow) STEM CUTTING  
Sambucus cerulea (Blue Elderberry) SEED/STEM CUTTING  
Sambucus racemosa (Red Elderberry) SEED/STEM CUTTING  
Symphoricarpos albus (Snowberry) SEED/ROOT & STEM CUTTING

OPTIONAL TREES & SHRUBS

Arctostaphylos columbiana (Hairy Manzanita) STEM CUTTING  
Arctostaphylos uva-ursi (Kinickinick) STEM CUTTING  
Myrica californica (CA Myrtle) ROOT CUTTING  
Pinus contorta (Shore Pine) SEED

GRAMINOIDS

Juncus tenuis (Slender Rush) SEED/DIVISION  
Juncus effusus (Soft Rush) SEED/DIVISION

REFERENCES

- Emery, Seed Propagation of Native California Plants, Santa Barbara Botanic Garden, 1988
- Hartmann & Kester, Plant Propagation: Principles & Practices, Prentice-Hall, 1975 (revised edition available)
- U.S.D.A., Forest Service, Seeds of Woody Plants of the United States, Agriculture Handbook #450, US Government Printing Office, 1974
- Young & Young, Seeds of Wildland Plants, Timber Press, 1986

## LANDSCAPE MAINTENANCE SUGGESTIONS

GRASSLANDS- Drought resistant native bunchgrasses and wildflowers are to be planted as mesic & xeric prairies in all test plots except those planted to the covercrop Regreen. After the expiration of the warranted period of establishment requiring a 90% cover these prairies will require minimal maintenance. A once a year high mowing first initiated in the late fall of the second full growing season is all that is needed; the mowed clipping should be left in place. Fertilization and irrigation of the prairies after the initial first year of establishment are not recommended as both practices will tend to alter the species composition by favoring exotics.

EMERGENTS/SHRUBS/TREES- Specifications warranting that a minimum of 80% of wetland emergent or woody materials survive at the end of the first growing season should be part of any future planting contracts. It should also be specified that during a "Period of Establishment" after planting that the planting contractor should perform monthly site inspections that include: 1) replacement of materials that are dead or missing; 2) removal of any litter or debris; and 3) completion of other measures as directed by the project manager to reduce mortality of the plantings (e.g. waterfowl/beaver depredation). The costs for these activities should be included in the bid price for the contract. Drip irrigation of all trees and shrubs during June through September of the first growing season after fall or winter planting will insure 80% survival. Second season irrigation is optional but recommended. An efficient and economical gravity drip irrigation system could be easily setup with a tanker truck and hoses. Overhead sprinkling is not recommended. Refer to the Robert Kourik book, Drip irrigation for every landscape and all climates (cited in the Bibliography) for additional irrigation ideas. Trees and shrubs will benefit from a semi-annual fertilization with a slow release fertilizer for the first few years.

#### PLANT PROTECTION RECOMMENDATIONS

As some or all of the woody shrub & trees are likely to be browsed on by deer or eaten by other mammals temporary plant protection is recommended. The shrub transects (T-1,2, & 3) can be easily covered with either Ree-may, a spun polyester row crop cover or 1/2" mesh bird netting. Either product should be firmly secured to the ground on the outside edge of the plantings. The bioswale test plot plantings will be more difficult to protect. Because a minimum monetary investment of a few purchased plants have been planted in this area, this area could be left unprotected to measure browsing levels or a deep mulch of cereal grain straw could be laid to provide some minimal protection at low cost. Ree-may will provide greater protection but will be difficult to secure. Both Ree-may and bird netting are available from the following wholesale nursery supply companies in the Portland metro area: Teufels, Inc./Portland/(503) 646 1111; Nurseryman's Supply/Boring, OR/(503) 663 0307; OBC Northwest/Canby, OR/(1-800) 477 4744.

A COMPARATIVE ESTIMATE OF FIRST 2 YEAR PER ACRE VEGETATION ESTABLISHMENT COSTS:  
NATIVE PLANT COMMUNITY VERSUS NON-NATIVE GRASSLAND

GRASSLANDS		
	<u>NATIVE</u>	<u>NON-NATIVE</u>
<u>Seed</u> materials only	\$ 400.00/acre (mesic) \$ 500.00/acre (xeric)	\$ 20.00/acre (grass and legume)
<u>Liming</u> materials only	\$ 0.00/acre (not necessary)	\$ 500.00/acre (year 1 only)
<u>Fertilization</u> materials only	\$ 10.00/acre (ammonium sulphate at 50lbs/acre)	\$ 180.00/acre (ammonium sulphate at 900lbs/acre)
<u>Lime/Fertilizer</u> application labor	\$ 150.00/acre (fertilizer only)	\$ 200.00/acre
<u>Mowing</u> equipment and operator	\$ 300.00-\$500.00/acre (3-5 times per year)	\$ 200.00/acre (2 times per year)
<b>SUBTOTAL - GRASSLAND</b> Average costs/acre	<b>\$1410.00/acre plus seeding labor</b>	<b>\$1100.00/acre plus seeding labor</b>
NATIVE UPLAND/LOWLAND SHRUBS		
<u>Plant Materials</u> mix of containers/collected propagules	\$1000.00/acre	
<u>Fertilizers</u> and/or	\$ 110.00/acre and/or	
<u>Mychorrizal Enrichment (Shrubs)</u> materials only	\$ 200.00/acre (plant cost plus 20%)	
<u>Irrigation</u> gravity/drip system	\$ ?/acre (METRO Staff and Water Truck?)	
<u>Labor Supervision</u> volunteer planting and fertilizing/enrichment	\$ ?/acre (METRO Staff or Contractor?)	
<b>SUBTOTAL - SHRUBS</b> Average costs/acre	<b>\$1310.00/ACRE<sup>1</sup></b>	
<b>TOTAL ESTIMATED ESTABLISHMENT COSTS/ACRE</b>		
	<b>Native Plant Community (Grass &amp; Shrubs)</b>	<b>\$2720.00/ACRE (AVERAGE COSTS/ACRE)<sup>1</sup></b>
	<b>Non-Native (Grass Only)</b>	<b>\$1100.00/ACRE (AVERAGE COSTS/ACRE)</b>

\* optional but desirable

<sup>1</sup> Plus irrigation and labor supervision

**A COMPARATIVE ESTIMATE OF PER ACRE MAINTENANCE COSTS FOR NATIVE PLANT  
PRAIRIE COMMUNITIES AND NON-NATIVE GRASS MIXES**

**(YEAR 3 THROUGH 30)**

<b><u>COST FACTORS</u></b>	<b><u>NATIVE</u></b>	<b><u>NON-NATIVE</u></b>
<b>LIMING</b>		
labor & materials	\$ 0 (not necessary)	\$ 850.00/Acre (1 application/2 years)
<b>FERTILIZATION</b>		
materials	\$ 0 (not necessary)	\$ 360.00 -/Acre (1-2 X Year)
application labor	\$ 0 (not necessary)	\$ 200.00 -/Acre
<b>MOWING</b>		
equipment & operator	\$100.00/Acre (1 mow/year)	\$100 - \$200/Acre (1 - 2 Mows/Year)
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<b>TOTAL COSTS</b>	<b>\$100.00/Acre/Year</b>	<b>\$1510.00 - \$1610.00/Acre/Year</b>

#### NATIVE PLANT ACQUISITION

In the past native Oregon plant materials have been very difficult to obtain. Recently, more nursery container grown plants of western Oregon trees & shrubs are becoming available for spring and fall planting seasons if several months advance notice is given. The availability of herbaceous and woody plant seed, however, is still very poor particularly seed of shrubs, native grasses and forbs. This situation should improve in the long term with increased marketplace demand. Up to date information concerning native plant availability can be obtained from the following sources:

Cascadia Native Landscape Project

(A non-profit organization)

PO Box 82292, Portland OR 97282

information telephone: (503) 236 0395 or  
(503) 222 0134

Hortus Northwest: A Pacific Northwest Native Plant Directory and Native Plant Journal (annual edition)

PO Box 955, Canby, OR 97013

Editor: Dale Shank

Publication Cost: \$9.00 (post paid)

information telephone: (503) 245 4068 (days)  
(503) 266 7968 (eves)

An alternative to outright plant or seed purchase is contract growing and/or contract seed collection. With 1 or 2 year notice and the receipt of a down payment most native plant nurseries will custom propagate and/or grow plant materials. For information concerning contract seed collection call the Cascadia information number listed above.

#### NATIVE PLANT GROWING AT SJL

The economic feasibility of growing native plant materials off the capped surface on lands adjacent to the SJL site should be explored. When evaluating a particular growing site the soil suitability, proximity to irrigation water, and type and availability of planting equipment and/or labor should be considered. Additionally, the construction of a small unheated hoop style greenhouse at the growing site would increase production efficiency and provide winter protection for woody and herbaceous container stock. Considering native plant shortages in the marketplace and the probable site reveg requirements, the on-site growing of native grasses, trees and shrubs, particularly softwood plant species such as willow and cottonwood, may provide some project cost savings and an excellent environmental education training opportunity for interested local citizens. Supervised volunteer labor could be organized and trained to assist with the planting, maintenance & harvest of nursery materials.

Many native plants are easily propagated from both hard and softwood cuttings or seed placed directly in prepared growing beds or in containers. Several methods of growing native grasses should

be explored depending on budget requirements. Medium sized pure stand plots (containing 1 grass species only) could be laid out and sized according to the scale of available planting and harvest labor and/or machinery. Small mixed species plots containing grasses and wildflowers could be laid out for hand seed harvest or dry hay harvest using hand scythes, small gas powered test plot harvesters or tractor mounted side bar cutters. Good site selection and pre-planting preparation is necessary when growing native grasses. One to two years of fallowing and/or herbicide application may be necessary before planting grasses in order to rid the ground of undesirable seedbanks of aggressive non-native species that may out compete native grass seedlings.

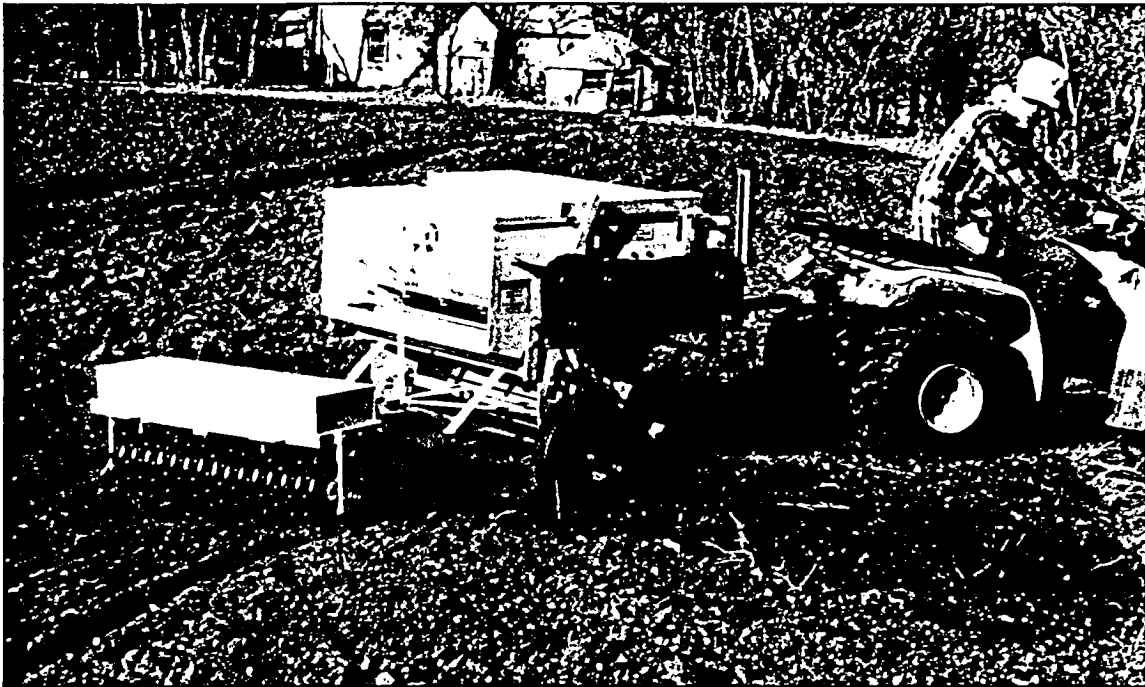




# truax

3609 VERA CRUZ AVE. NO.  
MINNEAPOLIS, MN 55422  
612-537-6639

## Truax Wildflower Seed Planter



The AFFORDABLE priced Truax is easily transported in the back of a pickup and can be pulled onto a site with an ATV or garden tractor.

## NO Row Effect

- BROADCAST
- LIGHTLY COVERS
- BRILLION STYLE PACKER





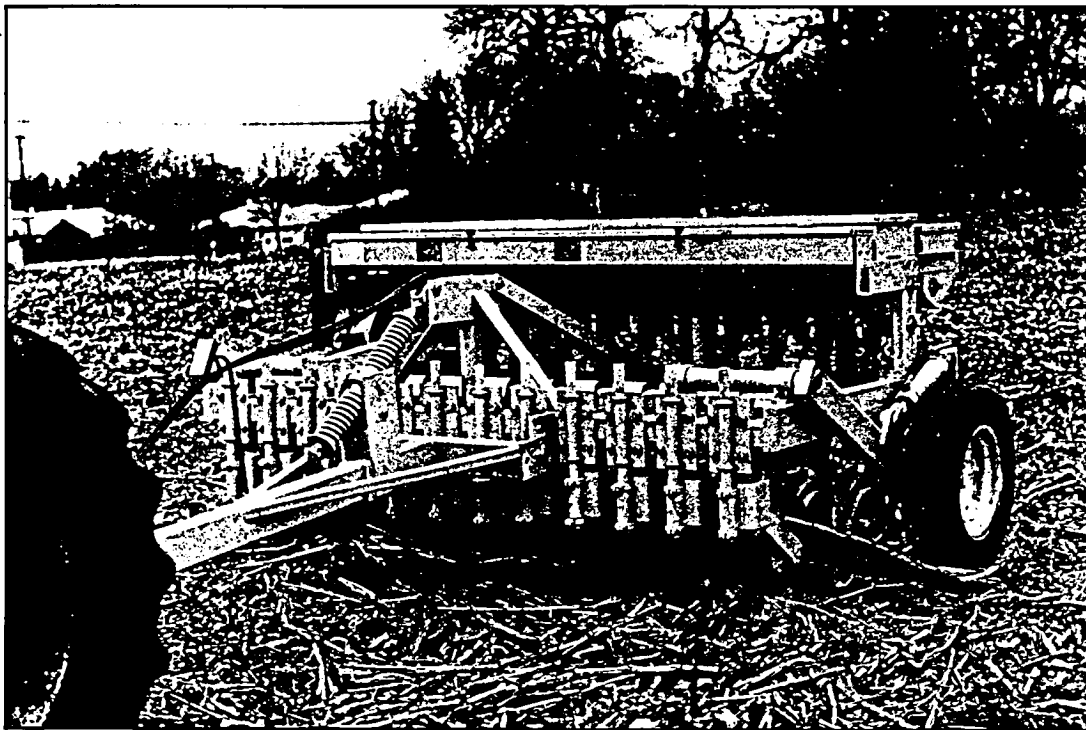
# truax

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# Truax Flex Drills

Native Grass - Cool Season Grass

Both No-till & Conventional Styles

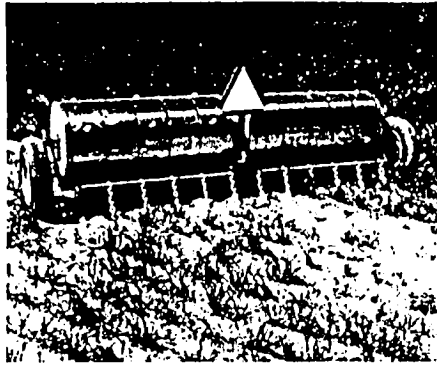


## Say "NO" to Maintenance

The TRUAX FLEX DRILLS address the most troublesome part of planting, **MAINTENANCE**. Conventional drill planters, with their mechanical linkages for weight transfer have always been maintenance intensive. The TRUAX FLEX drill has replaced these troublesome linkages with an adjustable rubber torsion knuckle for each planting row. **GONE** are the springs, rods, pivots, arms, and other moving parts of the linkage that has been so prone to failure. In it's place is an adjustable rubber knuckle with no moving parts, that transfers the drill weight to the planter units.

TRUAX FLEX DRILLS adjust to meet planting conditions of each site. An adjustable, flex tongue allows the drill to react to **ROUGH** sites and maintain planter and press wheel contact when the no-till units are going over ridges. An adjustable drive linkage allows the drive wheel to keep turning, even when it drops into a hole. Also the planter torsion knuckles are adjustable in order to control the weight transfer to the double disc openers.

## CHAFFY GRASS PLANTER



Aaron Beisel, inventor of the Flail-Vac seed stripper, seed shucker, seed conditioner, and other ag-related equipment, has invented a low-cost chaffy grass planter. After a year of field testing, with appropriate design changes under varying terrain conditions in Oklahoma, Arkansas, and Missouri, the new concept planter is market ready.

It works by metering the chaffy seed from openings in two aluminum drums to evenly disperse the seed over the field, independent of drive speed, while the seed is lightly covered by 1/8" - 1/4" of soil by the drag chains. Different grass seeds with varying pure live seed (PLS) tests can easily be adjusted for by the planter to yield whatever seeding rates you require.

Seedings of 10' width are accomplished with one's tractor, pick-up truck, 4 WD ATV vehicle, etc. A simple, light-weight drill hitch to pull two planters for larger operations is also available. Seeding rocky ground with varying slopes is now easily accomplished with the new planter.

## OLD WORLD BLUESTEM GRASS SEED

### VARIETIES AVAILABLE:

**IRONMASTER** - Most Palatable.  
**SPAR** - Most drought tolerant.  
**CANADA** - Best erosion control.  
**CAUCASIAN** - Most productive and cold tolerant.  
**PLAINS** - Blend of many varieties.

These perennial, warm season grasses have the following desirable characteristics:

**Drought Tolerance** - Requires half the water of cool season grasses; yet, very responsive to normal rainfall levels. Also, more drought tolerant than most native grasses.

Normal overgrazing will cause minimal stand deterioration.

Productivity is 2-3 times that of cool season grasses, like Fescue, and generally higher than most warm season native grasses.

Establishment usually occurs the first year with grazing, haying, and seed production possible. The normal seeding rate is 2 lbs. per acre.

High quality hay and forage - If kept in vegetative state.

Seasonal Niche - Fills the Summer niche in a year-round grazing program and is well suited to overcoming "Summer Slump" in Fescue country. Half of forage is produced in critical months of July - August.

Produces two seed crops per year - Early July and late September, early October.

Responsive to nitrogen - Excellent production reported with application of poultry litter.

## CAUCASIAN BLUESTEM GRASS SEED

For those producers in predominantly cool season grass country, with forages like Tall Fescue predominating, and an average precipitation of 35" or more, it is worthwhile utilizing Caucasian Bluestem as a warm season grass. Some key characteristics of the Caucasian variety of the Old World Bluestem grasses are:

Most productive - During a recent four year study, research plots at the University of Missouri Agricultural Research Station, Mount Vernon, Missouri, averaged ten (10) tons of DM per acre utilizing 60 lbs. of N.

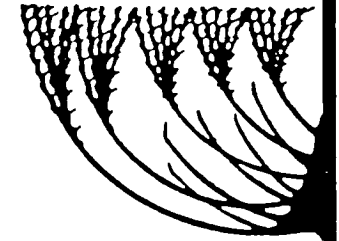
Most cold tolerant - Stands have been established as far north as Nebraska.

High quality hay - For example, J. Sidney Lowrance, District Conservationist, Marshall, Arkansas, tested Caucasian hay from his new stand and got 288 out of 300 maximum points, as judged by Dr. B. J. Hankins, Univ. of Arkansas Extension Agronomist-forages, to win 1989 Warm Season Grass Hay Award at the Searcy County Hay Show. Two of the many winning attributes of Caucasian were DM protein of 14.6% and 65.9% TDN.

High quality grazing - Stocker summer grazing performances show gains of 2 - 2.5 lbs./day utilizing Caucasian pastures without supplemental feeding. For example, Dr. Richard Crawford, University of Missouri Extension, tested yearling Holstein cattle and found them to gain slightly more than 2 lbs. per day during summer grazing trials.

Caucasian Bluestem has been a thoroughly researched grass since it was introduced into the USA by the USDA Soil Conservation Service in 1929. Research is accelerating as Caucasian proves to be the cattlemen's warm season grass. Dr. Crawford, University of Missouri writes that "Caucasian Bluestem . . . higher yielding and more tolerant to stresses of environment and grazing pressure compared to other native warm season grasses".

GRASS SEED,  
SEED STRIPPERS,  
SEED PLANTERS,  
SEED CLEANERS,  
SEED TESTERS,  
ACCESSORY EQUIPMENT.



# AG-RENEWAL, INC.

(405) 772-7059 • 1710 Airport Road • Weatherford, OK 73096

HELLO:

I am pleased to introduce you to Ag-Renewal, Inc. a rapidly growing company, providing quality goods and services to forage producers to help them better manage their forage businesses.

The history of Ag-Renewal, Inc., is typical of many farmer businesses, in that a series of farm business decisions led to a full-time farm agribusiness.

1975— R.L. Dalrymple, Agronomist with the Noble Foundation of Ardmore, Oklahoma, asked my dad, Glen Miller, to plant Plains Bluestem grass on land we rented from his mother. Several decades of research at Oklahoma State University proved to Mr. Dalrymple the superior forage characteristics of Old World Bluestem grasses, such as Plains which was released in 1972. We harvested the seed annually with the conventional, but highly inefficient, "combine" method until 1982.

1981— In September, we went to a field day at the USDA-ARS research station at Woodward, Oklahoma, where they introduced a new method of harvesting grass seed with the Woodward Flail-Vac Seed Stripper. In December we obtained the license to manufacture and sell the patented Woodward Flail-Vac Seed Stripper from Aaron Beisel, a farmer-inventor.

1982— We manufactured and sold the Woodward Flail-Vac Seed Stripper under a partnership named Ag-Renewal Group, which was later incorporated and renamed Ag-Renewal, Inc.

1987— Operations were moved from the farm to a purchased facility in Weatherford, Oklahoma.

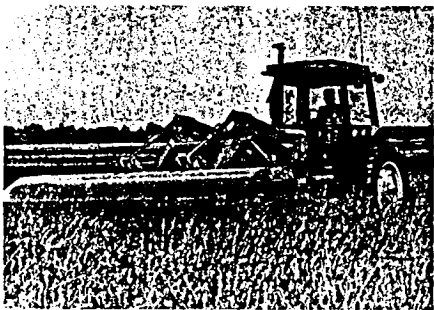
1988— Present. We added several new products (seed cleaners and seed planters) and recruited Alan Breslow, Agricultural Specialist of the Oklahoma Small Business Development Center network, as Vice President to help plan and guide for nationwide growth.

Thank you for your past support and accept my pledge of continuing sincere efforts toward providing innovative products and services to forage producers.

Sincerely,

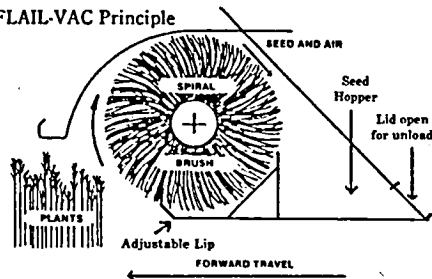
Weldon Miller,  
President

## WOODWARD FLAIL-VAC SEED STRIPPER

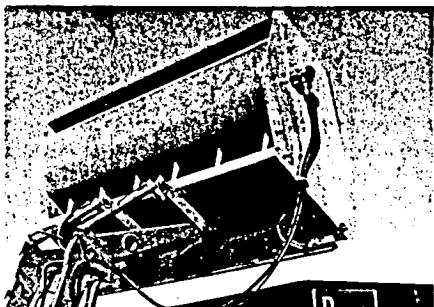


Harvesting Old World Bluestem Seed

The FLAIL-VAC Principle



Nylon brush engineered to strip ripe seed and then deposit in rear hopper.



Flail-Vac in unload position.

The Flail-Vac is a rotary brush stripper which attaches to a tractor's front-end loader. The brush creates a vacuum, drawing the seed head in while stripping the ripe seed and depositing it in the hopper. Flail-Vacs harvest only the ripe seed, leaving immature seeds for later harvesting. An independent PTO-driven hydraulic system provides variable power, up to 900 RPM for optimal brush speed, for harvesting a wide variety of grass seeds.

Many cool season grass seeds such as Fescue, Kentucky Bluegrass, and others can also be harvested with the Flail-Vac. For example; the FV-12 model can, with a 50 horsepower tractor, cover about 4 acres per hour. If one was harvesting Fescue Seed at the rate of 300 pounds per acre, than the 1,200 lbs. harvested per hour would have to be unloaded, taking approximately 30 seconds, once every half-hour, as the hopper will hold approximately 525 lbs. of Fescue Seed.

### MODELS AVAILABLE:

FV-6: 6 foot wide stripper (mainly for small research plots).

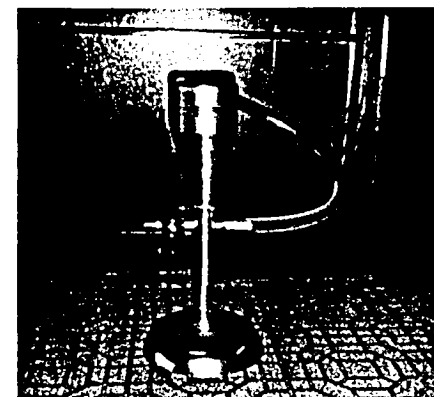
FV-12: 12 foot wide stripper.

### 12 REASONS TO PURCHASE A FLAIL-VAC

1. Field tested by farmers for 9 years.
2. Economical - use your own tractor and front-end loader.
3. Harvested seed often is higher in purity than combining.
4. Simple to operate and maintain.
5. Harvests in difficult terrain.
6. Easy cleanout between varieties of seed.
7. Independent hydraulic system.
8. Lightweight aluminum construction.
9. Adjustable Lip for optimal harvesting of various seeds.
10. Universal mounting brackets for quick hookup.
11. Flow control valve allows manual changes in brush speed to adjust intensity of stripping action.
12. Quick payback on equipment.

## PNEUMATIC - SEED SHUCKER

Due to unknown purity levels of chaffy seeds, the shucker is needed to take the guess work out of grass seed harvesting, cleaning and marketing. Use as a tool to determine, within several minutes, if fields are worth harvesting, if seed offered to you is at the claimed purity level and, while cleaning seed, to monitor the cleanout.



Total testing process takes  
less than 3 minutes.

The 23" aluminum seed shucker attaches to your compressor and operates @ 90 PSI furnishing 7 cfm to produce a supersonic blast which strips the chaff from the grain. Seeds not completely shucked are recycled until shucking is finished. Clean grain exits the unit against a vacuum resistance which holds the lighter trash within the shucker.