United States Department of Agriculture

NRCS Natural Resources Conservation Service

Celebrating 40 Years

Knox City Plant Materials Center

Providing Conservation Plants and Technology
to
Texas and Oklahoma

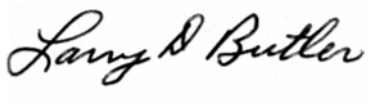
August 26, 2004

Welcome,

This year marks the 40th Anniversary of the James E. "Bud" Smith Plant Materials Center here at Knox City, Texas.

This Plant Materials Center (PMC) and the other 25 PMCs around the nation originated from a system of nurseries set up in 1933 to produce the much-needed plants and seeds for healing the scars of erosion caused by years and years of up-and-down hill farming, droughts, and floods. Today the USDA Natural Resources Conservation Service manages the Plant Materials Program to produce plants and seeds for many purposes such as wildlife habitat, recreation, forages, aesthetics, water quality, as well as erosion control. You will learn more about the PMC and the Program during today's field day.

I encourage you to take a tour of the evaluations and production fields, view the displays in the barns, and attend one or both of the workshops. We are happy to have your here today. Thanks for coming.



Dr. Larry D. Butler
State Conservationist

August 17, 2004

RE: Knox City Plant Materials Center 40th Anniversary Celebration

Dear Conservation Friends:

I had the pleasure of attending and working the Knox City Plant Materials Center's 25th Anniversary event. It had a huge impact on my life and career!

As a range conservationist by technical training, I enjoy the plant aspect of our work. I had enjoyed limited work with the Plant Materials Program up to that point.

Soon after that event, I was selected as the Plant Materials Specialist for the states of Missouri, Iowa and Illinois. It was a great opportunity to work with people who loved finding and selecting plants to help solve tough conservation problems for many of our customers. I still have a great appreciation and respect for the work that continues.

The greatest compliment I have been paid in my professional career is that I made a difference. I want to pass that compliment on to the Knox City PMC Team. You have made a difference and continue to impact future generations with your work. Your work today, and the ones preceding you, has changed the landscape of this part of the planet for the better.

Thanks for your dedicated public service to the conservation of natural resources. Thanks for making a difference for our customers!

Respectfully,

M. Darrel Dominick
State Conservationist

The Past 40 Year
1964 to 2004

Late in 1964 the Soil Conservation Service (SCS) set up a Plant Material Center (PMC) near Knox City, Texas, on 60 acres of irrigated farmland leased from Mr. Tom Campbell.

In the early days the Soil Conservation Service operated a network of field nurseries. From 1934 up until about 1953 SCS nurseries were operated much like our modern day plant materials centers. The big task of the nurseries was to provide grass seed critically needed to restore land damaged by the drought and wind erosion of the 1930's

The first major native grass seed harvest in history was made by nursery personnel in late 1935 from prairie rangelands in Texas and eastern New Mexico. More than 50,000 pounds of blue grama seed were harvested with bluegrass seed strippers. From these early efforts plant scientist soon learned that conventional farm combines could be easily modified to harvest many of the desired native species. These early developments helped solve the seed supply problem, but it was only a partial solution.

Other hurdles facing the early SCS technicians included proper seedbed preparation, dates and rates of seeding, and equipment suitable for planting grasses under range and pasture conditions. All of these items were worked out by 1938 and the basic techniques are still in use today with only minor modifications.

As SCS nurseries were phased out in the mid 50's the Plant Materials Program as we know it today came into existence.

The Knox City Plant Materials Center was the first modern day plant materials center established in Texas. Today there are three plant center serving Texas and parts of adjoining states. Besides Knox City there are centers at Nacogdoches in East Texas, and Kingsville in South Texas.

An early figure in the SCS plant science arena was James E. "Bud" Smith. Bud was involved in many of the new technologies coming out of the program, and on September 7, 1967 the Knox City PMC was given the honorary name of the James E. "Bud" Smith Plant Materials Center in

honor of Bud's dedicated service in early plant science work from 1935 up until 1965.

Today the Natural Resources Conservation Services (NRCS) Knox City PMC is part of a network of 27 plant materials centers located around the United States. This includes one new PMC established in 2004 at Fallon, Nevada.

The primary area of service of the Plant Materials Center at Knox City is central, west and north Texas and southwestern Oklahoma. Each center serves an area comprising several mayor land resource divisions, but it doesn't stop here. Like all plant materials centers work being done at the Knox City PMC is coordinated with that being evaluated at other locations across the country.

Like in the days of the early SCS nurseries questions arise dealing with plants.

Today the modern NRCS Plant Materials Center is an integral part of finding the solution to the problem we face in modern agriculture.

Today droughts, overgrazing, wildlife habitat improvement, water quality improvement, and re-establishment of critical areas are just a few of the issues the Knox City program must deal with.

Since its establishment in 1964 the Center has released on it own or in cooperation with others 32 improved varieties of plants, including many grasses, forbs, legumes, shrubs, and trees. Cooperating with other partners and prior to the establishment of the Knox City Center, Texas NRCS was involved with 7 other conservation plant releases which are also credited to the Knox City program.

As we move into a new era of thinking about conservation the Knox City Plant Materials Center will continue to develop new plant releases and plant science technology to provide customers the tools they need to manage their natural resources.

PLANT VARIETIES RELEASED THROUGH THE KNOX CITY PMC PROGRAM

'Alamo' switchgrass, *Panicum virgatum*

'Alamo' switchgrass is a native, perennial, warm-season grass originating near George West, Texas. 'Alamo' was cooperatively released in 1978 by the Soil Conservation Service and Texas Agricultural Experiment Station. 'Alamo' has been proven a greater forage producer in Texas than the commercial variety 'Blackwell'. 'Alamo' is also effective in controlling erosion on the shoreline of watershed structures when used in combination with other plants. Switchgrass is a major component of the tall grass prairies, and it is widely adapted to most of the states of Texas and Oklahoma. 'Alamo' has the potential of being one of the top forage producing grasses in the south. 'Alamo' has also shown some degree of salt tolerance for revegetation of saline areas.

'Aztec' Maximilian sunflower, *Helianthus maximiliani*

'Aztec' Maximilian sunflower is a native, perennial, warm-season, rhizomatous forb that is a composite of several accessions. 'Aztec' was cooperatively released by the Soil Conservation Service, Texas Agricultural Experiment Station, and Texas Parks and Wildlife Department in 1978. 'Aztec' has a wide variety of uses ranging from livestock browse and wildlife food and cover to landscaping, beautification, and screening. This multiple use plant is adapted to most of the state of Texas and Oklahoma where 18 inches or more annual precipitation is received. 'Aztec' produces a multitude of showy, yellow blooms in the fall. Its lush, green foliage makes it a very valuable range forb.

'Boomer' bur oak, *Quercus macrocarpa*

'Boomer' bur oak is native, tall, long-lived, deciduous hardwood tree originally collected in Custer County, Oklahoma. 'Boomer' bur oak was cooperatively released in 1994 by the Soil Conservation Service, the Texas Forest Service, and the Texas Parks and Wildlife Department. 'Boomer' was selected for use in windbreak planting on the Southern High Plains and Rolling Plains of Oklahoma and Texas. The heavy spreading branches, large dense leaves, and large acorns make 'Boomer' attractive to wildlife by providing shelter and food. 'Boomer' will make an attractive landscape plant for urban and recreation areas by providing dense shade.

'Comanche' partridge pea, *Chamaecrista fasciculate*

'Comanche' partridge pea is a native warm-season annual legume originating in Throckmorton County, Texas. 'Comanche' was cooperatively released in 1985 by the Soil Conservation Service, Texas Agricultural Experiment Station and Texas Parks and Wildlife Department. 'Comanche' was selected as a legume to be included in range and pasture seeding. The most important use of 'Comanche' is providing cover for slower-establishing perennial plants in revegetation work. Being a legume 'Comanche' adds nitrogen to the soil and conditions the land for establishment of other types of vegetation. The seed of 'Comanche' partridge pea is used by several forms of wildlife and is considered an important bobwhite quail food.

'Haskell' sideoats grama, *Boulteloua curtipendula*

'Haskell' sideoats grama is a native, warm-season, perennial, rhizomatous grass originating near Haskell, Texas. This 1983 release is a widely adapted and important range forage species. In the midgrass prairies, where it is most prolific, sideoats provides excellent grazing for cattle. Although it is not a heavy seed producer as some bunch types, ‘Haskell’ is highly rhizomatous. In tests with `El Reno' sideoats in range seeding throughout the Rolling Plains and in areas south, ‘Haskell’ has proven to be superior.

'Earl' big bluestem, *Andropogon gerardii*

'Earl' big bluestem is a native, warm-season, perennial grass originating near Weatherford in Parker County, Texas. ‘Earl’ was released in 1996 by the newly named Natural Resources Conservation Service formerly the Soil Conservation Service. ‘Earl’ was selected for its moderate forage production and good seed production. Under proper range management, stands are persisting and remain highly productive. ‘Earl’ big bluestem is a quality grass species either planted as a single species or as part of a mixture of other native grasses, forbs and legumes. ‘Earl’ out performed the standard `Kaw' at all planting locations in forage production, length of grazing period, and seed production. ‘Earl’ is adapted for use in range seeding, erosion control plantings, wildlife habitat plantings and plantings for water quality improvement.

'Eldorado' Engelmanndaisy, *Engelmannia pinnatifida*

'Eldorado' Engelmanndaisy is a native, perennial, cool-season forb originating near Eldorado, Texas. ‘Eldorado’ was cooperatively released in 1985 by the Soil Conservation Service, Texas Agricultural Experiment Station and Texas Parks and Wildlife Department. It is adapted to all of Texas and Oklahoma except the Trans-Pecos area of Texas and the eastern edge of both states. ‘Eldorado’ produces large amounts of forage in late winter and early spring before most other forage plants are actively growing. It is palatable to all classes of livestock as well as deer because of its high protein content and digestibility. The dark green foliage and bright yellow flower clusters make it an attractive choice for highway and urban landscaping.

'Premier' sideoats grama, *Boulteloua curtipendula*

'Premier' sideoats grama is a native (North America), warm-season, perennial, semi-bunch type grass originally near Cauchtemoc and Chihuahua, Mexico. This 1960 release is adapted to west central Texas where sideoats is an important range forage species. On western range sites 'Premier' sideoats provides excellent grazing for cattle. 'Premier' has considerable drought tolerance and forage production is equal to other recognized varieties. This variety was released by the Texas AES in cooperation of ARS and SCS.

'Lometa' Indiangrass, *Sorghastum nutans*

'Lometa' Indiangrass is a native, perennial, warm-season rhizomatous grass originating near Lometa, Texas. Indiangrass is a major component of the tall-grass prairies of Texas and Oklahoma. It is widely adapted and appears in every region of the states, although overgrazing by cattle has severely reduced populations. 'Lometa' was released in 1981 as a leafy, productive type that has the potential for revegetating areas in southern Texas where the commercial variety `Cheyenne' is not well adapted. Field trials indicate that Lometa also does well in selected sites in north Texas and southern Oklahoma. 'Lometa' is rhizomatous type of grass that is adapted to coarse textured soils showing potential for stabilization of sandy soils.

'Mason' sand hill lovegrass, *Eragrostis trichodes* var. *pilifera*

'Mason' sandhill lovegrass is a native, perennial, warm-season bunchgrass originating near Mason, Texas. 'Mason' was cooperatively released by the Soil Conservation Service and the Texas Agricultural Experiment Station in 1972. Sandhill lovegrass is one of the most palatable and nutritious range grasses in central Texas and the Southern High Plains. 'Mason' was selected for its ease of establishment and attractiveness to cattle producing large amounts of palatable forage early in the spring before other warm season grasses produce much grazing. 'Mason' produces abundant seed for reseeding eroded areas and is adapted for use in vegetative wind strips

'Overton R18' rose clover, *Trifolium hirtum*

'Overton R18' rose clover is an annual, introduced, cool-season legume. 'Overton R18' was developed by the Texas Agriculture Experiment Station in cooperation with the Soil Conservation Service and was released in 1991. This variety has shown to have a longer, later, and more productive seasonal distribution of forage than other rose clover varieties. 'Overton R18' is useful in overseeding warm-season pastures on well-drained upland prairie soils in Texas and Oklahoma with annual precipitation greater than 20 inches.

'Plateau' awnless bushsunflower, *Simsia calva*

'Plateau' awnless bushsunflower is a native, perennial, warm-season forb. 'Plateau' has shown to be adapted to limestone and calcareous soils in central Texas. It has proven to be an excellent forage plant for improving the nutritional intake of livestock whose diets require large numbers of forbs. 'Plateau' also provides excellent browse for whitetail and mule deer. 'Plateau' was released in 1987 and is recommended for use in mixtures with other forbs, legumes and other grasses.

'Rainbow' wild plum, *Prunus sp*.

'Rainbow' wild plum is a native, warm-season shrub. 'Rainbow' is a hardy, slightly suckering small shrub seldom reaching 10 feet in height. This plum is a composite from five locations in Texas. 'Rainbow' is important for wildlife, providing food and cover. Fruit vary from deep yellow to bright red in color. Fruit of 'Rainbow' will begin ripening in June and will continue through September. 'Rainbow' which was released in 1981 has proven useful in erosion control, reclamation, and shelterbelt plantings.

'Sabine' Illinois bundleflower, *Desmanthus illinoensis*

'Sabine' Illinois bundleflower is a native, warm-season, perennial legume originating near Crystal Beach, Texas. This legume is widely adapted and is found growing on most range sites. Sabine is useful in range and pasture mixes, for wildlife food and shelter, beautification, and in reclamation plantings. 'Sabine' has potential for erosion control through stimulated growth of grass species by nitrogen fixation. 'Sabine' was released in 1983 by SCS in cooperation with the Texas Agricultural Experiment Station and Texas Parks and Wildlife Department.

'Saltalk' alkali sacaton, *Sporobolus airoides*

'Saltalk' alkali sacaton is a native, perennial, warm-season bunchgrass originating near Sayre, Oklahoma. 'Saltalk' was cooperatively released by the Soil Conservation Service, the Oklahoma Agricultural Experiment Station, the Texas Agricultural Experiment Station and the Agricultural Research Service in 1981. 'Saltalk' is a valuable soil stabilizer for vegetation of critical saline, saline-alkali, and alkaline soils in western Oklahoma and north Texas. Because it is palatable to livestock, it is useful in rangeland seed mixtures on selected sites.

'Selection 75' kleingrass, *Panicum coloratum*

'Selection 75' kleingrass is a perennial, warm-season bunchgrass from South Africa. 'Selection 75' was cooperatively released in 1968 by the Soil Conservation Service and the Texas Agricultural Experiment Station. Forage produced is palatable and nutritious and is readily grazed by cattle. The seed is eaten by many species of songbirds and quail. Deer relish the young tender forage. Since its release over 2 million acres of 'Selection 75' have been planted in Texas. This release has also proven to have some degree of saline tolerance.

'Shoreline' common reed, *Phragmites australis*

'Shoreline common reed is a native, warm-season, perennial grass originating near Lawrence, Texas. This wetland species was released by the Soil Conservation Service and the Texas Agricultural Experiment Station in 1978. It has been extensively used for erosion control on watershed structure berms, and saved millions of dollars by not having to use more expensive and higher maintenance rock faces. 'Shoreline' is palatable to livestock and must be protected to insure adequate plants are available for wave protection. Common reed also provides excellent cover and habitat for many forms of wildlife.

T-587 old world bluestem, *Dichanthium spp.*

T-587 old world bluestem is a perennial, warm-season bunchgrass, introduced from the Near East. This germplasm was released in 1981 and has proven quite palatable to livestock. T-587 is a high forage producer and is persistent under heavy grazing. It is widely adapted to the diverse climates and soils of Texas. T-587 does best when planted on tighter soils in areas receiving 14 inches or more of rainfall. T-587 lacks the winter hardiness needed for survival in the Texas Panhandle and Oklahoma.

'Van Horn' green sprangletop, *Leptochloa dubia*

'Van Horn' green sprangletop is a native, warm-season, essentially biennial grass originating in Culberson County, Texas. This variety was released in 1989 by the Soil Conservation Service in cooperation with the Agricultural Research Service and the Texas Agricultural Experiment Station. 'Van Horn' is relatively easy to establish, grows rapidly, and is palatable to livestock. 'Van Horn' is beneficial in range seeding to take grazing pressure off slower developing perennial species.

'Verde' kleingrass, *Panicum coloratum*

'Verde' kleingrass is a perennial, warm-season bunchgrass from South Africa. 'Verde' was cooperatively released in 1981 by the Texas Agricultural Experiment Station in cooperation with the Soil Conservation Service and Agriculture Research Service. Forage produced is palatable and nutritious and is readily grazed by cattle. The seed is eaten by many species of songbirds and quail. Verde was developed for seedling vigor, forage production and quality, and seed size. 'Verde' is a synthetic variety developed by crossing several kleingrass strains. Kleingrass has also proven to have some degree of saline tolerance.

'Yellow Puff' littleleaf leadtree, *Leucaena retusa*

'Yellow Puff' littleleaf leadtree is a native, warm-season, leguminous shrub. 'Yellow Puff' was released in 1981 and is a composite of five collections from the western Edwards Plateau area. This variety is well suited for ornamental plantings in landscapes and plantings along highways because of its golden, round flowers. 'Yellow Puff' is well suited for wildlife or range plantings, providing high quality forage and browse.

'Nueces' and **'Llano' buffelgrass, *Pennisetum ciliare***

'Nueces' and 'Llano' buffelgrass are introduced, perennial, warm-season grasses originating from Africa. Released in 1977 by the USDA Agricultural Research Service in cooperation with the Texas Agricultural Experiment Station and the Soil Conservation Service. Nueces and Llano are hybrids developed for cold tolerance, forage production, and persistence under range conditions. These two varieties were adapted for planting further north than common lines of buffelgrass.

San Marcos Germplasm eastern gamagrass, *Tripsacum dactyloides*

San Marcos Germplasm eastern gamagrass was originally collected 1964 from native plants located in Hays County, Texas near the town of San Marcos. San Marcos Germplasm may be used in pure stands for improved pasture and hay plantings or as a component in seed mixtures for range seeding. Its forage value is highly palatable to all livestock and must be managed accordingly to avoid overgrazing. Wildlife can utilize the plants and seed for food. The plants provide good ground nesting cover for quail. San Marcos Germplasm maybe utilized in filter strips, field borders, contour buffer strips, cross wind trap strips, and riparian forest buffers for nitrogen and phosphorus uptake, and erosion control.

Potter County Germplasm spike dropseed, *Sporobolus contractus*

Potter County Germplasm spike dropseed was originally collected in 1984 from native plants located in the Canadian River bottomland approximately 18 miles north of Amarillo in Potter County Texas. Potter County Germplasm may be used in pure stands or as a component in seed mixtures for range seeding and conservation reserve plantings. Spike dropseed reseeds itself readily on ranges following overgrazing or drought. It may be used for stabilizing sandy soils that have high erosion potential. Its forage value is fairly palatable to all livestock. Wildlife can utilize the plants for food and ground nesting cover.

Borden County Germplasm sand dropseed, *Sporobolus cryptandrus*

Borden County Germplasm sand dropseed was originally collected in 1984 from native plants located approximately 12 miles west of Gail, TX in Borden County. Borden County Germplasm may be used in pure stands or as a component in seed mixtures for range seeding and conservation reserve plantings. Sand dropseed reseeds itself readily on ranges following overgrazing or drought. It may be used for stabilizing sandy soils that have high erosion potential. Its forage value is fairly palatable to all livestock. Wildlife can utilize the plants for food and ground nesting cover.

Duck Creek Germplasm Texas dropseed, *Sporobolus texanus*

Duck Creek Germplasm Texas dropseed was originally collected 1982 from native plants located along an intermittent stream flowing into Duck Creek north of Spur in Dickens County Texas. The potential use of Duck Creek Germplasm is for range seeding and revegetation on disturbed or damaged sites that have saline problems. Texas dropseed may be used in areas where alkali sacaton and fourwing saltbush is adapted. Mostly in low, moist, somewhat saline or alkaline areas or adjacent to oil wells sites almost denuded of vegetation.

Kerr Germplasm Wright pavonia, *Pavonia lasiopetala*

Kerr Germplasm Wright pavonia was originally collected by RC Malden and sent to the old SCS San Antonio Nursery in the early 60's. After the nursery closed the germplasm was moved the Waco, TX and later to the Knox City PMC in 1966. Seed produced at Knox City PMC from the original germplasm was used to establish a native population at the Texas Parks and Wildlife - Kerr Wildlife Management Area near Hunt, TX. Kerr Germplasm may be used in pure stands or as a component in seed mixtures for range seeding. Wright pavonia reseeds itself readily on rangeland where the plants are protected from overgrazing. It may be used for beautification and low input native landscapes. Its forage value is highly palatable to all livestock, white-tailed deer and many exotic herbivores. Wildlife will utilize the plants and seed for food. Plants used in perennial food plots for white-tailed deer will have to be protected and managed using limited access areas.

OK Select Germplasm little bluestem, *Schizachyrium scoparium*

OK Select Germplasm little bluestem was originally collected in 1967 from native stands in Caddo, Grady, Jefferson, Stephens and Washita counties of southwestern Oklahoma.
OK Select Germplasm was developed from seed collected from a polycross nursery established from the 5 original collections. Parental lines were selected for their seedling and plant vigor, leafiness and quick establishment allowing them to crowd out weeds. Average seed yield/acre for OK Select is around 150 pounds per acre. OK Select Germplasm may be used in pure stands for pasture and hay plantings or as a component in seed mixtures for range seeding. Its forage value is fair to good while young and tender. The plants provide good ground nesting cover for quail.

Cottle County Germplasm sand bluestem, *Andropogon hallii*

Cottle County Germplasm sand bluestem was originally collected in 1982 from native plants located along US Highway 62/70 in western Cottle County approximately 14 miles west of Paducah, TX. Cottle County Germplasm is a southern later maturing ecotype of sand bluestem for the southern Great Plains and Rolling Plains. Cottle County Germplasm may be used in pure stands for pasture and hay plantings or as a component in seed mixtures for range seeding. Its forage value is good while young and tender. After heads mature, forage is fair for cattle and horses. Wildlife can utilize the plants and seed for food. The plants provide good nesting cover for quail. Cottle County Germplasm maybe utilized for filter-strips, field borders, contour buffer strips, and erosion control plantings on sandy soils.

Cuero Germplasm purple prairie clover, *Dalea purpurea*

Cuero Germplasm purple prairie clover is a native, warm-season, perennial legume. Cuero Germplasm was originally collected in 1970 in the southern part of DeWitt County approximately 11 miles from the town of Cuero, TX. Cuero Germplasm may be used as a component in seed mixtures for range seeding and pasture plantings. Livestock and wildlife favor Cuero Germplasm as highly nutritious forage. Its forage value is particularly high while young tender growth is present. It must be managed accordingly to avoid overgrazing. Wildlife can utilize the plants and seed for food. The plants provide a good seed food crop for quail. Cuero Germplasm may be utilized in filter-strips, field borders, contour buffer strips, in riparian forest buffers, and for erosion control plantings.

Hondo Germplasm velvet bundleflower, *Desmanthus velutinus*

Hondo Germplasm velvet bundleflower is a native, perennial, warm-season, legume. Hondo Germplasm was originally collected in 1969 in the eastern part of Medina County approximately 8 miles from the town of Hondo, TX. Hondo Germplasm may be used as a component in seed mixtures for range seeding and pasture plantings. Goats, sheep and deer favor Hondo Germplasm as well as other bundleflower. Its forage value is good while young and tender. After seed heads mature, forage is fair for livestock. Wildlife can utilize the plants and seed for food. The plants provide a good seed food crop for quail. Hondo Germplasm may be utilized in filter-strips, field borders, contour buffer strips, in riparian forest buffers, and for erosion control plantings.

Early NRCS Cooperative Releases

'King Ranch' yellow bluestem, *Bothriochloa ischeamum* var. *songarica*
'Kleberg' bluestem, *Dichanthium annulatum*
'Pretoria' bluestem, *Dichanthium annulatum*
'Angleton' bluestem, *Dichanthium aristatum*
'Gordo' bluestem, *Dichanthium aristatum*
'Medio' bluestem, *Dichanthium aristatum*
'Marfa' green sprangletop, *Leptochloa dubia*

Workshop I

Time:
9:00 am
1:45 pm

Location:
North East of Seed Processing Barn on Lawn Area

Grass Seed Drill Calibration

Rudy Esquivel
Assistant Manager
Knox City PMC

Calibrating a grass drill is important to ensure that the correct amount of seed is being put out. Knowing the seed is important such as size, weight, slick or fluffy, amount of trash present when buying grass seed. This will help in the calibration process. Always buy seed, according to the recommended Pure Live Seed (PLS). Grass drills can be calibrated both in the shop and in the field.

Below is one method of calibrating a grass drill in the shop:

1. Grass drill is clean and well maintained for calibration.
2. Set a bag or can under each seed tube.
3. Pour enough grass seed in hopper to cover all seed tubes.
4. *Measure around the outside of the drive wheel in feet.
5. *Measure strip width of grass drill.
6. *Turn drive wheel at desired length and measure.
7. *Mix and weigh total grass seed in pounds caught in bags or cans.
8. *Multiply seed caught from grass drill in lbs. to the acre from grass drill measurements.
9. This will give you bulk lbs./ac. of seed output from measured grass drill.

Formulas for Calculating Pure Live Seed (PLS):

1.) Calculating % Pure Live Seed:
   a.) **Purity X Germination = % PLS**

2.) Calculating Pure Live Seed (PLS):
   a.) **Bulk wt. X % PLS = pure live seed in sample**

3.) Calculating Bulk Seed Planting Rate:
   a.) **PLS planting rate / % PLS = bulk planting rate**

Workshop II

Time:
11:00 am
1:45 pm

Location:
North End of Seed Processing Barn

Plant Identification - Is It Important?

Jeff Goodwin
Rangeland Management Specialist
NRCS Ft Hood Project Office

If you ranch, farm, garden, are trying to manage a lawn or landscape your home, or just enjoy being outside, your knowledge of the plants surrounding you determines, to a large degree, your level of satisfaction.

This workshop presents six principle components of a sound management plan. Each of the six requires proper plant identification to make management decisions. We will explore range health, response to management, forage quality, animal preferences, toxic plants, and vegetation monitoring.

Basic plant taxonomy and botany, such as plant parts, types of inflorescences, parts of a spikelet, and plant reproductive parts will be presented to help you use keys to identify unknown plants. You will also receive a list of helpful publications and websites for plant identification.

2004 Field Trailer Tour Schedule

(each tour lasts approximately 1 hour)

Start Time		Tour Guide
9:00am	Trailer A	John Tate
9:15am	Trailer B	Stephanie Gray
9:30am	Trailer C	David Embry
9:45am	Trailer D	Kent Ferguson
10:15am	Trailer A	Reggie Quiett
10:30am	Trailer B	Jim Stevens
10:45am	Trailer C	Stephanie Gray
11:00am	Trailer D	David Embry
1:30pm	Trailer A	Kent Ferguson
1:45pm	Trailer B	John Tate
2:00pm	Trailer C	Reggie Quiett
2:15pm	Trailer D	Jim Stevens

Trailer Tour Highlights

Tour Stop	
Stop – 1	Center Facts, Woody Evaluation - Hardwoods
Stop – 2	Breeder Seed Fields
Stop – 3	'Plateau' Awnless Bushsunflower, 'Eldorado' Engelmanndaisy, 'Sabine' Illinois Bundleflower
Stop – 4	Field border, Wind strips, 'Haskell' Sideoats Grama, CNRA Indiangrass, OK Select Germplasm Little Bluestem, Cottle County Germplasm Sand Bluestem
Stop – 5	Native Prairie Demonstrations
Stop – 6	Giant Sandreed, 'Lometa' Indiangrass
Stop – 7	PMT-389 Arizona Cottontop, Hondo Germplasm Velvet Bundleflower, Cuero Germplasm Purple Prairie Clover, Windbreak Demo., 'Rainbow' Wild Plum
Stop – 8	'Alamo' Switchgrass, 'Shoreline' Common Reed, BBNP Tobosagrass, BBNP Cane Bluestem
Stop – 9	Nature Conservancy of Texas Seed Production, North Texas Ecotype Project, 'Premier' Sideoats Grama, BBNP Chino Grama
Stop – 10	San Marcos Germplasm Eastern Gamagrass
Stop – 11	'Tejas' Texas Bluegrass, Windbreak Conservation Field Trials - Conifers
Stop – 12	Plant Selection Process, Initial Evaluation Plantings, Purpletop, Prairie Acacia, Prairie Cordgrass, Havard Panicum

Stop #1 (Trailer Guide) – Gray, Embry, Tate, Quiett, Ferguson, Stevens

Time: 2.0 minutes

Introduce yourself – What you do.
Welcome everyone to the Knox City PMC 40th Anniversary Celebration.

Give Center facts.

- The Knox City PMC was established in late 1964 and was the first PMC to be established in Texas.
- The center serves about 80% of Texas and SW Oklahoma.
- Made up of 137.5 acres.
- Irrigation water is provided from 8 wells pulling water from the Seymour Aquifer, *note –currently the center's irrigation capacity is at 30% due to the drought.
- To learn more about the history of the center, refer to the write-up in the program guide.
- An important part of the program – the cooperative effort with numerous partners releasing conservation plants and developing plant science technology.

Woody Trees – Hardwoods

Looking off to the side here is one of the PMC woody hardwood evaluation blocks.

Some of these have been here for 30 years with most over 20 years old.

The Center is evaluating woody hardwoods mainly for windbreaks and wildlife use.
In 1993 the Center released 'Boomer' bur oak, which was originally collected near Clinton, Oklahoma. Bur oak makes an excellent tree for landscapes and may be used in windbreaks as long as it can receive supplemental irrigation. 'Boomer' is an example of a cooperative release by the Plant Materials Center, The Texas Forest Service and Texas Parks and Wildlife.

Stop # 2 (Ground Guide) – David Sikes, Tony Baeza

Time: 3.0 minutes

Introduce yourself – What you do.
Welcome everyone to the Knox City PMC 40th Anniversary Celebration.

Breeder Seed Fields

These small production fields are referred to as breeder blocks.
It is the responsibility of the originator of any new variety to maintain a source of that variety. That way when a commercial seed or plant grower needs to establish a new production block of a variety, materials are available. Seed harvested from breeder blocks are used by the PMC to establish Foundation Seed Fields. It's the harvest from these Foundation Seed Fields that the commercial grower uses to establish new production fields.

A critical part of the operation here at the PMC is the movement of Foundation Seed into the commercial market. That where a special cooperative effort exists. Foundation seed produced by the Center is transferred to the Texas Foundation Seed Service at Vernon. The Texas Foundation Seed Service then markets PMC releases to commercial growers. An agreement between the PMC and the Texas Foundation Seed Service has been in place since 1969.

Breeder blocks are fertilized, irrigated and managed just like large scale production fields. Not all PMC releases are maintained here in these breeder blocks. Some varieties have sufficient amounts of seeds being stored in climatic controlled coolers.

The whole purpose is to produce quality seed and have it available to meet market demands.

To date the center has released through its own efforts or in cooperation with others, 47 new varieties of conservation plants.

- **Refer to Handout – PMC Releases**
- **Give personnel insight**

Stop #3 (Ground Guide) – Steve Nelle, Kevin Wright

Time: 3.5 minutes

Introduce yourself – What you do.
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Foundation Seed Production - Forbs and Legume

At this stop we want to look at three Foundation Seed Fields. Two are native forbs and one legume. All are important to wildlife.

'Plateau' awnless bushsunflower is a native, perennial, warm-season forb adapted to limestone and calcareous soils in central Texas. 'Plateau' is an excellent forage plant for improving the nutritional intake of livestock (mainly sheep and goats) whose diets require large numbers of forbs. 'Plateau' also provides excellent browse for whitetail deer. It was released in 1987 and is recommended for use in range seeding mixtures. 'Plateau' is a cooperative release by the Plant Materials Center, the Texas Agricultural Experiment Stations, and Texas Parks and Wildlife.

'Eldorado' Engelmanndaisy is a native perennial, cool-season forb, and is an excellent multiple use plant. 'Eldorado' is readily grazed by livestock and wildlife due to its high protein content and palatability. Because of its yellow, daisy-like flowers and beautiful green foliage, this plant lends itself to many landscape applications. 'Eldorado' Engelmanndaisy was released in 1985 by the Plant Materials Center, the Texas Agricultural Experiment Station and Texas Parks and Wildlife.

'Sabine' Illinois bundleflower is a perennial, warm-season legume. It is both winter hardy and drought resistant making it adapted to a wide area from southern Texas to northern Oklahoma. 'Sabine' will grow on a wide range of soil types, from clays to sandy loams. 'Sabine maybe used as a component in range and pasture seeding, providing a legume for nitrogen assimilation. 'Sabine' is a cooperative release by the Plant Materials Center, the Texas Agricultural Experiment Stations, the Agricultural Research Service, and Texas Parks and Wildlife.

All three of these varieties maybe used in perennial wildlife food plots. All three selections are important at providing food and cover for deer, quail and wild turkey.

- **Give personnel insight**

Stop #4 (Ground Guide) – Charlie Morris, Jeff Groves

Time: 5.0 minutes

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Field Borders, Wind strips and Foundation Seed Production, Generation 1 (G1) Seed Production

Looking behind the trailer and back to the east we see two examples of conservation practices where perennial vegetation is used. The **field borders** or **vegetative filter strip** behind you is planted with 'Alamo' switchgrass and is approximately 15' wide. The strip is planted along the south and west boundaries of the Center. The border was established in 1989 and has been persistent with minimal maintenance. Many other species such as sand bluestem, eastern gamagrass, and Indiangrass can be used for the same purpose. Back to the east we see an example of native plants being used as **perennial wind strips**. San Marcos Germplasm eastern gamagrass and 'Alamo' switchgrass have been incorporated into two row permanent strips with eight cultivated rows between them. This is just a couple of examples of how native plants can be used in conservation buffers.

'Haskell' sideoats grama is planted in the next block. This block is a **Foundation Seed Production Field**. 'Haskell' is a native, perennial, warm-season grass released in 1983 in cooperation with the Agriculture Research Service and the Texas Agricultural Experiment Stations. 'Haskell' was selected for exceptional rhizome development and seed production. It is adapted throughout much of Texas and Oklahoma. As many of you know sideoats grama is designated as **The State Grass of Texas**. 'Haskell' sideoats grama may be use in pure stands or as a component in rangeland seed mixes. 'Haskell' is highly productive and provides excellent grazing for livestock.

The **Indiangrass Seed Production Block** is an example of material that is being produced for a specific partner. Since 1989 the Center has been working with the National Park Service to collect and produce plant materials for revegetation use at National Park sites. The Center has worked with Big Bend National Park, Lake Meredith National Recreation Area, and Chickasaw National Recreation Area in Oklahoma. This Indiangrass seed production block is being grown for Chickasaw National Recreation Area near Sulphur, Oklahoma and will be used for the revegetation of roadsides and other disturbed sites within the Park.

Stop #4 (Ground Guide) - continued

Time: 4.0 minutes

The next two production blocks are examples of alternative releases used by the Center to speedup the movement of plant materials into public use. **OK Select Germplasm little bluestem** and **Cottle County Germplasm sand bluestem** were both released in 2002 and are examples of "Selected" ecotype releases. NRCS recognizes five release types; "Cultivar", "Tested", "Selected", and "Source Identified".

"Selected" releases are evaluated and released to commercial use in as little as 5 years, compared to a full "Cultivar" release which can take upward of 10-25 years to evaluate and release. **"Selected" release production blocks are classified as "Generation 1" (G1) production blocks which is similar to a foundation production block for a "Cultivar" release.** "Selected' ecotypes and G1 production is also transferred to the Texas Foundation Seed Service for marketing and distribution to commercial seed growers.

OK Select Germplasm little bluestem is a native, perennial, warm-season, bunchgrass. OK Select Germplasm is a polycross of 5 collections from Caddo, Grady, Jefferson, Stephens and Washita counties of Oklahoma. The little bluestem may be used in pure stands for pasture and hay plantings or as a component in seed mixtures for range seeding. Forage value is good while young and tender. Wildlife can utilize the plants for cover and food. Little bluestem is an important species for quail nesting cover. OK Select Germplasm may be used in filter strips, field borders, contour buffer strips and riparian forest buffers.

Cottle County Germplasm sand bluestem is a native, perennial, warm-season grass that grows on deep sandy soils in Texas and Oklahoma. Cottle County Germplasm was originally collected in Cottle County west of Paducah, Texas. Cottle County Germplasm can be planted in pure stands or as a component in a seed mix. Cottle County Germplasm can be used for dune stabilization, herbaceous wind barrier, and rangeland improvement on sandy soils. Wildlife can utilize the plant for cover and food.

Seeds harvested from these fields will be transferred to the Texas Foundation Seed Service for distribution to commercial seed producers.

- **Give personnel insight**

Stop # 5 (Trailer Guide) – Gray, Embry, Tate, Quiett, Ferguson, Stevens

Time: 1.5 minutes

Native Prairie Demonstration

With the renewed interest in conserving native prairies around the country, the Plant Materials Center, in cooperation with Texas Parks and Wildlife Department and several Native Plant and Prairie Associations established this native prairie demonstration site. This mid-grass site of 10 acres was established in 1992 and reflects what the original Knox Prairie may have looked like many years ago.

The site was originally planted with 'Haskell' sideoats grama and trace amounts of OK Select Germplasm little bluestem and 'Lometa' Indiangrass. Over the past 12 years many other native species have appeared and colonized within the site. Mesquites have been spot sprayed with the herbicide "Remedy" to remove them from the planting. Future plans call for the introduction of other species common to the site and to use the prairie for teaching others about prairie ecology.

- **Give personnel insight**

Stop # 6 (Trailer Guide) – Gray, Embry, Tate, Quiett, Ferguson, Stevens

Time: 1.5 minutes

Initial Seed Increase and Foundation Seed Production

Two plantings we want to look at here are; **Giant sandreed and 'Lometa' Indiangrass**

Giant sandreed a native, perennial, warm-season, rhizomatous grass adapted to deep sands and sand dunes. The planting here is an initial seed increase block. Seed harvested from this block will be used for further increase and other evaluations. This selection of giant sandreed is a composite of five collections that were selected and combined because of their similarity. Giant sandreed is valuable for controlling erosion on sandy soils subject to severe wind erosion, especially, in the West Texas areas. The plant reproduces from seeds and rhizomes. Giant sandreed cures well and provides good winter forage for cattle. Plans are to release this plant as a 'Select' class of release in 3-5 years.

'Lometa' Indiangrass is a native, perennial, warm-season grass originally collected near the town of Lometa in central Texas. Indiangrass is a major component of the tall grass prairies of Texas and the Great Plains. Like a lot of our tall grass species, overgrazing by livestock has severely reduced the population. This planting of 'Lometa' is a **foundation seed production field**. Seeds harvested from this field will be transferred to the Texas Foundation Seed Service for distribution to commercial seed producers. 'Lometa' Indiangrass was released in 1981 in cooperation with the Texas Agricultural Experiment Stations. 'Lometa' is a leafy, productive Indiangrass that may be used in pure stands or as a component in range seeding mixes. Field trials have indicated that 'Lometa' Indiangrass also does well on selected sites in north Texas and southern Oklahoma.

- **Give personnel insight**

Stop #7 (Ground Guide) – Charles Coffman, Ricky Linex

Time: 5.5 minutes

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Seed Increase Fields, Generation 1 (G1) Seed Production, Windbreak Demonstration

The first planting we want to look at is a seed increase field of **PMT-389 Arizona cottontop.** Arizona cottontop is a native, perennial, warm-season, bunchgrass that is common to the southwestern US and northern Mexico. It grows best on gravelly and sandy loam soils. Arizona cottontop can be planted in pure stands or used as a component in a seed mix. Arizona cottontop makes a good "filler grass" providing quick germination and establishment. PMT-389 Arizona cottontop was placed into the open market for increase and sale in 1968, but was never formally released by the Plant Materials Program. Plans include formally releasing PMT-389 as a "Select Ecotype" and having seeds marketed to commercial growers through the Texas Foundation Seed Service. Forage value of PMT-389 is good and wildlife can utilize the plants for food and cover.

Hondo Germplasm velvet bundleflower and **Cuero Germplasm purple prairie clover** are examples of 'Select Ecotype" releases by the Center. Both are native warm-season, legumes and both were originally collected in south Texas. As their names imply; Hondo Germplasm was collected near the town of Hondo and Cuero Germplasm near Cuero. Both selections were released by the Center in 2003. Hondo Germplasm velvet bundleflower and Cuero Germplasm purple prairie clover are adapted throughout central and west Texas and maybe used as a component of range seeding mixes. Both selections are valuable as a wildlife food and may include in perennial food plots. As with other "Select Ecotype" releases, seeds from these production blocks are transferred to the Texas Foundation Seed Service for marketing and distribution.

The **Windbreak Demonstration Block** to our east was planted in 1981 as an example of a 3 row windbreak based on NRCS technical guides. The demonstration is intended to show how a windbreak should look and function. Three species were used; Ponderosa pine, eastern red cedar and 'Cling Red' Amur honeysuckle. The honeysuckle was planted in 1987 to replace Russian olive that was killed by root rot.

Across the road from the windbreak demonstration is a seed production block of **'Rainbow' wild plum**. 'Rainbow' wild plum was released in 1981 and is a cooperative release between the Plant Materials Center, the Texas Agricultural Experiment Stations, and the US Forest Service. 'Rainbow' is a composite of four collections made at different locations across Texas. Each collection was selected for fruit size and maturity date. 'Rainbow' has a fruiting period from June to October providing wildlife with food for a much longer period than native plums of the area. It can be used for landscapes, shelterbelts and wildlife habitat plantings. 'Rainbow' is a hardy, slightly suckering, small shrubby plant. Low branches make excellent cover for small animals and game birds and multi-branches make a good nesting site for songbirds. 'Rainbow' wild plum makes is an excellent plant to control erosion on critical areas.

- **Give personnel insight**

Stop # 8 (Ground Guide) – Danny Havins, Lee Rodriguez

Time: 3.0 minutes

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Foundation Seed/Plant Production and Big Bend National Park Seed Production

'Alamo' switchgrass was released in 1978 by the Plant Materials Center. It is a cooperative release between the Center and the Texas Agricultural Experiment Station. The field we are looking at is a **Foundation Seed Production** block. Seed harvested from this block will be transferred to the Texas Foundation Seed Service and made available to commercial seed growers. 'Alamo' is a big robust lowland type of switchgrass with a high forage yield potential. Forage yields of 5 to 9 ton/acre have been reported. 'Alamo' is widely adapted to areas receiving 25 inches or more rainfall. In areas receiving less than 25 inches 'Alamo' may be grown successfully using supplemental irrigation. 'Alamo' switchgrass may be used in pure stands for grazing or hay production or as a part of a range seeding mixture. 'Alamo' is highly adapted to controlling shoreline erosion on watershed structures. 'Alamo' is being evaluated for biofuel use and is out producing all other ecotypes being looked at across the eastern US.

'Shoreline' common reed a native, perennial, grass released by the Center and the Texas Agricultural Experiment Station in 1978. 'Shoreline' and 'Alamo' go hand and hand working together to control shoreline erosion on watershed structure berms. 'Shoreline' common reed is planted next to the water and 'Alamo' is planted in a strip above. Both species will tolerate wet soil conditions and are persistent under fluctuating water levels. 'Shoreline' is a vegetatively propagated species, no viable seeds are produced. Rhizomes are harvested and planted in the late winter or very early spring.

Two small seed increase field at this stop include **tobosagrass** and **cane bluestem.** Both are native, warm-season perennial grasses collected from Big Bend National Park. Seed production from these fields will be returned back to the Park for revegetation use on eroded areas or to reseed areas following road renovation. Fifteen years ago Big Bend National Park and the Center started work on an interagency agreement allowing the Center to collect and produce native species collected from within the Park. Materials produced by the Center remain the property of the National Park Service and may not be used for private landowners. The National Park Service reimburses the Plant Materials Center for their services. As mentioned at a previous stop the Center since 1989 has worked with Big Bend National Park, Lake Meredith National Recreation Area, and Chickasaw National Recreation Area in Oklahoma.

- **Give personnel insight**

Stop # 9 (Ground Guide) – Jim Eidson, Mike Miller

Time: 5.0 minutes

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Texas Nature Conservancy, The North Texas Ecotype Project and Seed Productions Blocks

Back in 1999 the Plant Materials Center and the Nature Conservancy of Texas operating the Clymer Meadow Preserve near Greenville began work on a project to collect and increase five grass species native to the site. Eastern gamagrass, switchgrass, Indiangrass, big bluestem and little bluestem were identified as species the Nature Conservancy wanted to preserve and have available to revegetate lands within the Blackland Prairie site. The block of e**astern gamagrass** and **switchgrass** included here, and the **Indiangrass** block back to the west is part of that effort to producing sufficient seeds for the project. As the Preserves needs are met and sufficient seeds are produced, TNC plans to make available the materials to other landowner connected to the preserve by proximity.

Another cooperative effort by the Center and birthed by objective similar to that of the Nature Conservancy Project is the **North Texas Ecotype Project (NTEP).** NTEP was created to conserve the culturally, historically, and ecologically important native plant genotypes of north-central Texas, and promote their use for revegetation projects. Locally adapted native plant materials offer the greatest potential for producing diverse, sustainable plant communities. Three key partners; Texas Parks and Wildlife, the US Fish and wildlife Service, and the Plant Materials Center recognized the need on increasing the availability and diversity of ecotypic plant materials in north-central Texas. NTEP is a product of that effort. Recently Tarleton State University's (TSU) College of Agriculture and Human Sciences has agreed to sponsor and house NTEP and fifteen additional project partners have been identified to promote the project.

Two additional things to mention at this stop include a **Foundation Seed Block** of **'Premier' sideoats grama,** and a **seed increase field** of **Chino grama** for **Big Bend National Park**.

'Premier' was released in 1960 by the Texas Agricultural Experiment Station in cooperation with the Agriculture Research Service and the Soil Conservation Service. It was selected for its upright, leafy growth, drought tolerance, and good seed yield. 'Premier' was no longer available in the commercial market until an effort by the Center to take a small amount of breeder's seed, obtained from the Agriculture Research Service, and increases it into the Foundation Seed Block shown here.

Chino grama is a native, perennial, warm-season grass collected at Big Bend National Park. Chino grama grows on dry slopes and along dry washes, in gypsum sands and on calcareous outcrops generally in the western portions of Texas, New Mexico and northern Mexico. Chino grama is being produced to revegetate sites disturbed following road reconstruction within the Park.

- **Give personnel insight**

Stop #10 (Ground Guide) – Dalton Merz, Charles Anderson

Time: 3.0 minutes

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Generation 1 (G1) Seed Production – (equivalent to Foundation)

San Marcos Germplasm eastern gamagrass was released by the Center in 1999. San Marcos was originally collected in 1964 from a native stand located in Hays County near San Marcos, Texas. Eastern gamagrass is a highly desirable forage plant and may be used in pure stands for improved pasture and hay plantings or as a component in seed mixture for range seeding. San Marcos Germplasm is a lowland type of gamagrass and grows well in wet, seepy, areas. San Marcos's forage value is highly palatable to all livestock and must be managed to avoid overgrazing. Wildlife can utilize the plants and seed for food and cover. Eastern gamagrass makes excellent ground nesting cover for quail. San Marcos Germplasm eastern gamagrass may be used for filter strips, field borders, contour buffer strips, cross wind trap strips and riparian forest buffers. It is an excellent plant for nitrogen and phosphorus uptake. Since San Marcos is a "Selected" release this production block is classified as a G1 seed production field and seed from this blocks will be transferred to the Texas Foundation Seed Service for marketing and distribution.

- **Give personnel insight**

Stop #11 (Trailer Guide) – Gray, Embry, Tate, Quiett, Ferguson, Stevens

Time: 2.5 minutes

Foundation Seed Production and Windbreak Conservation Field Trials -Conifers

Looking back to the west is a **Foundation Seed Production** block of **'Tejas' Texas bluegrass.** 'Tejas' Texas bluegrass was developed by TAMU Research and Extension Center at Dallas. Prior to its release in 2003 the Plant Materials Center in cooperation with the Dallas center and the Texas Foundation Seed Service worked on seed production, harvest and cleaning technology. Texas bluegrass is a native, perennial, cool-season, grass used in lawn, pastures or in areas where shade tolerance is a factor. 'Tejas' is adapted to the north and central Texas. 'Tejas' Texas bluegrass can be used as a replacement for small grains in winter grazing systems.

Looking off to the side is one of the PMC conifer evaluation blocks. The evergreens or conifers shown here are part of the Center's **Windbreak Conservation Trials** that were evaluated from 1983 until 2003. Three sites, Levelland, Pampa, and Knox City, were planted and evaluated to look at species and adaptability for use in windbreaks and shelterbelts. Some of the species growing in this block are eastern red cedars, Japanese black pines, ponderosa pines, pinyon pines, scotch pines, Coulter pine and digger pine.

- **Give personnel insight**

Stop #12 (Ground Guide) – Charlie Schur, **Ronnie Vanicek**

Time: 4.0 minutes

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Why and How Plants are Evaluated at the Center

This is our last tour stop and here we want to talk about the plant evaluating process.

- Through a process of meeting with cooperators and determining their conservation plant technology needs the Plant Materials Center will initiate a **Plant Selection Study**. Plant Selection Studies use observational and quantitative evaluations along with plant breeding methods to isolate and/or select improved materials.

- After the need is identified, plants with the potential for meeting that need are collected and brought to the Center. Each **Collection** is given an Accession Number that is used to maintain its identity during the evaluation, increase, and storage process. Collections are made by NRCS personnel, other federal and state agencies, and private citizens.

- After several years of gathering collections, groups of the same species are established in **Initial Evaluation Plots or IEP.** Plants for the study maybe established in the greenhouse and transplanted into field plots, or collections maybe seeded directly into evaluation plots. At this stage each collection is compared against others in the planting and rated for seed production, forage production, plant vigor, and resistance to diseases, insects, cold and drought. Initial selections are made after several years of evaluating.

- Initial selections are than moved into **Advanced Evaluation or AE Plots.** During advanced evaluation selected accessions are further evaluated looking at cultural management needs, and whether the plant poses any threat to the environment. During the advance evaluation period selected accessions will also go through initial seed increase.

At this stop several plant species are in the **Initial** or **Advance Evaluation** stage.

Purpletop and **prairie cordgrass** are being evaluated here and are examples of **Initial Evaluation Plots** for a plant selection study.

Prairie acacia and **Havard panicum** are examples of plants collections undergoing **Advance Evaluation**. Both species are in initial seed increase production.

In the main seed barn is an exhibit and video showing a more in-depth explanation of how the Plant Materials Program selects plants and develops conservation plant technology. During your visit be sure to watch the video and look over the exhibit.

****Thank Everyone for Going on the Tour***