

# Integrated Roadside Vegetation Management for County Rights-of-Way: Native Seed Distribution Program / A statewide initiative led by the University of Northern Iowa Roadside Office

Iowa State Association of Counties

2014 Excellence in Action Awards / Inter-governmental nomination / Linn County

## ***Application Prepared by:***

Robert B. Roman  
IRVM Program Manager  
Linn County Secondary Road Department  
1888 County Home Road  
Marion, Iowa 52302  
319-892-6424  
rob.roman@linncounty.org

### **1. Abstract**

In 1988 the Iowa legislature created Integrated Roadside Vegetation Management and Iowa's Governor signed the program into law. In that same year, the Living Roadway Trust Fund was created in the office of the treasurer of state. The fund is used for development and implementation of integrated roadside vegetation plans. In 1989 the UNI Roadside Office was created to serve as a statewide resource for technical information, training, networking and performance enhancement for county roadside managers, weed commissioners, and others working with Iowa's public road rights-of-way. The objective of Integrated Roadside Vegetation Management in Iowa law: "It is declared to be in the general public welfare of Iowa and a highway purpose for the vegetation of Iowa's roadsides to be preserved, planted, and maintained to be safe, visually interesting, ecologically integrated, and useful for many purposes."

The Native Seed Distribution Program through the University of Northern Iowa Roadside Office secures native source identified seed for county roadside management programs through the Federal Transportation Alternatives Program under the direction of the Iowa Department of Transportation. For over twenty years, a concentrated statewide effort has been in place to increase quantities and varieties of Iowa's native plant species. This seed distribution program directs those efforts to Iowa's secondary road corridors for soil stabilization, water quality, habitat, biodiversity, sustainability, and beautification. Iowa is a nationwide leader in the use of native plants for public purposes related to roadside vegetation management. Eighty two counties have participated in the annual native seed distribution. One third of Iowa's counties will receive seed valued at \$250,000.00 in 2014. The funding awarded this year for distribution and use in 2015 through Transportation Alternatives Program (TAP) will provide lasting benefits for citizens of Iowa and the environment.

## **2. The problem/need for the program**

The county government system is based on local decision-making and local funding. Each county manages its roadsides a bit differently. Iowa Code Chapter 314 provides guidance related to administrative provisions for highways. Regardless of the scope for local agencies, the UNI Roadside Office works with each county to provide the best available resources and tools to continue to equip local staff with proper training, knowledge and insight as it relates to managing vegetation in county road rights-of-way.

Iowa Code 314.22 is titled Integrated Roadside Vegetation Management. Subsection 1 of this code says the state department of transportation shall provide an integrated roadside vegetation management plan and program. Subsection 2 says a county may adopt an integrated roadside vegetation management plan consistent with the integrated roadside vegetation management plan adopted by the department under subsection 1. Specific goals are set forth in the rule and they include the following:

- Maintain a safe travel environment.
- Serve a variety of public purposes including erosion control, wildlife habitat, climate control, scenic qualities, weed control, utility easements, recreation uses, and sustenance of water quality.
- Be based on a systematic assessment of conditions existing in roadsides, preservation of valuable vegetation and habitats in the area, and adoption of a comprehensive plan and strategies for cost effective maintenance and vegetation planting.
- Emphasize the establishment of adaptable and long lived vegetation, often native species, matched to the unique environment found in and adjacent to the roadside.
- Incorporate integrated management practices for the long term control of damaging insect populations, weeds, and invader plant species.
- Build upon a public education program allowing input from adjacent landowners and the general public.
- Accelerate efforts toward increasing and expanding the effectiveness of plantings to reduce wind-induced and water induced soil erosion and to increase deposition of snow in desired locations.
- Incorporate integrated roadside vegetation management with other state agency planning and program activities, including the recreation trails program, scenic highways, open space and tourism development efforts.

The residents of Linn County have demanded multiple purposes for their roadside vegetation. In 1989, a citizens committee recommended to the Board of Supervisors that Linn County adopt an IRVM program. Many goals and management activities were listed, and the administration of the program was suggested. Native grasses along with appropriate forbs were mentioned as a measure to fulfill some of these goals. Native plants are superior in providing the functions of many of the goals prescribed in the Iowa Code 314.22 legislation / Integrated Roadside Vegetation Management.

The varieties of native grasses available in 1989 were predominantly western and southern cultivars. Local varieties of native grasses were rare, and the seeds of native broadleaf plants were unavailable in any large quantities. Some species were available in bulk quantities, but were not tested as of yet for purity and germination percentages prior to sale. Where will we find the materials to meet the goals?

### ***3. Description of the Program***

In 1971, a roadside vegetation management study began in Linn County. The study was one of the earliest to test spot spraying as a technique for controlling unwanted vegetation in roadsides as opposed to blanket spraying; and was probably the first to use a variety of herbaceous species native to the continent of North America in roadside plantings. The planting on the newly graded right-of-way north of Lisbon included native seed that was hand collected in Iowa from isolated native prairie remnants. A Research Report on Roadside Vegetation Management by Paul A. Christiansen and David L. Lyon was submitted to both the Iowa Department of Transportation and Linn County in 1973.

In the late 1970's, the Iowa DOT and a couple of counties began using a few native species in their roadside plantings – mainly Switch grass. In 1983, an Agronomist with Iowa DOT (the position now in the Roadside Development Section), began looking at native species for erosion control, and began using a few native broadleaf species along with the grasses. By the time our legislature and governor implemented the 314.21 and 314.22 legislation in the late 1980's, six counties were already implementing IRVM principles and practices using best management strategies. Native seed however, was still difficult to find.

The UNI Roadside Office was created to help counties implement the principles of IRVM. Beginning in fiscal year 1995, moneys from the Living Roadway Trust Fund have gone to the University of Northern Iowa to maintain the office and to continue to move the IRVM programs forward at the county level. The Roadside Office is one of three primary programs at the Tallgrass Prairie Center. The Center was established at UNI in 1999 as the Native Roadside Vegetation Center. The name was changed in 2006 to more accurately reflect its mission, programs, and activities. The other two programs include the Prairie Institute, which reflects UNI's 30 year commitment to prairie reconstruction, restoration, management, and advocacy; and Natural Selections (formerly the Iowa Ecotype Project), which develops regionally adapted Iowa Source Identified foundation seed for commercial production. The Roadside Office works directly with county Roadside Managers. County programs are housed with the Conservation Board, with the Secondary Road Department, or directly with the Board of Supervisors. Roadside Managers work with the complexity of Iowa Code 314.22, with the requirements of Iowa Code 317, and with the issues that led to the recent revisions of Iowa Codes 318.3 and 314.17.

In 1990, the Linn County Board of Supervisors, with input from the Linn County Conservation Board, implemented an IRVM Program. The program in Linn County was housed in the Secondary Road Department, utilizing the experience of the Linn County Conservation Department. Also in that year, the Living Roadway Trust Fund provided monies to the Iowa Ecotype Project. One of the first orders of business for our program in Linn County was a native plant demonstration project. Living Roadway Trust Fund dollars were secured to plant 50 native prairie species over 35 acres in 1991 that included a portion of a newly graded road project adjacent to the Pleasant Creek State Recreation Area. Contracted seeding mixes were changed in the project area, to better help the native seed establish. Pure live seed of many species was hard to find, and vendor quantities were added to reach desired totals. Also in 1991, Linn County inventoried 8400 quarter mile segments of secondary road rights-of-way. Among other things, the inventory noted native prairie remnants, and native prairie species within each remnant. This would prove useful to the Iowa Ecotype Project, as that project moved forward.

The Iowa Ecotype Project began in 1990 when Dr. Daryl Smith at the University of Northern Iowa was awarded \$25,000.00 from the Living Roadway Trust Fund for the first year of a project that has resulted in over 70 native Iowa species being available from commercial growers in large quantities at affordable prices. The project has involved the best of partners, including the Iowa Department of Transportation, the University of Northern Iowa, the USDA Plant Materials Center in Elsberry, the Iowa Crop Improvement Association, the Natural Resource Conservation Service in Iowa, the Iowa Native Seed Growers Association, and a large, dedicated volunteer network. Now called The Natural Selections Program; high quality, genetically diverse, regionally adapted native seed is increased for prairie and wetland restorations. What began as a collection of seed from three species per year from Iowa remnants has resulted in over 200,000 pounds of Natural Selections seed produced annually by commercial growers. Source Identified seed is certified through Iowa Crop Improvement Associations' AOSCA-approved program.

The Iowa Crop Improvement Association is a nonprofit organization, and has been designated as the official seed certifying agency in Iowa. Its membership is made up of farmers, seed producers, and others interested in crop improvement, with a Board of Directors elected from the membership. The Native Species Program with ICIA was established in 1994 and includes a Native Species Committee. The program has grown significantly since its inception, from 10 species in 1994 to over 150 species in 2013. In 2009, at a jointly sponsored Statewide Grow Iowa Native Initiative meeting hosted by the Iowa Crop Improvement Association, attendees present at the initial meeting represented several native seed and plant producers from Iowa, Iowa State University Forestry Department, Iowa Academy of Science, Iowa Department of Natural Resources Prairie Resource Center, Iowa DNR State Forest Nursery, Iowa Department of Agriculture and Land Stewardship, Iowa Department of Transportation, Linn County Engineering and Secondary Roads, Living Roadway Trust Fund, Tallgrass Prairie Center, and the University of Northern Iowa Business Development and Incubation Center.

The Iowa Native Seed Growers Association was founded in 2010. Ten native Iowa seed producers from Iowa and Minnesota make up the association. Each has their own unique story to tell. Long term challenges for association members include retaining and expanding existing markets, developing new strategies for marketing, developing new plant materials, and maintaining adequate isolation of species and sources for certification. The commercial producer horticultural experience is huge. Collection, propagation, production and cleaning methods are written, not borrowed. Species in production outnumber Iowa certification listings, and some producers certify species in neighboring states with the genetics sourcing originating there.

Congress enacted transportation enhancements in 1991 as part of the Intermodal Surface Transportation Efficiency Act (ISTEA). Dollars have been invested around the country in facilities and trails for walking and bicycling, historic preservation, land acquisition, landscaping and scenic beautification, rails to trails, environmental mitigation, and transportation museums. In 1998, Congress reauthorized the enhancements program in the Transportation Equity Act for the 21<sup>st</sup> Century (TEA-21). Six hundred and twenty million dollars in annual funds were available through 2003 to state transportation agencies for 12 types of transportation-related projects. A reauthorization in 2005, called the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), provided funding through 2009. Regardless of the evolving acronyms, the Transportation

Enhancement (TE) program has remained essentially the same since its start in 1991. The new Moving Ahead for Progress in the 21<sup>st</sup> Century Act (MAP-21) replaced the Transportation Enhancement (TE) Activities with the Transportation Alternatives Program (TAP). The TAP replaced the funding from pre-MAP-21 programs and provided funding for programs and projects defined as transportation alternatives. The national total reserved for the TAP is equal to 2 percent of the total amount authorized from the Highway Account of the Highway Trust Fund for Federal-aid highways each fiscal year.

The Native Seed Distribution Program for county roadsides began in 1998. Thirty one counties participated that year. 142,000 federal dollars purchased 4,350 pounds of native grass seed and 540 pounds of native forb seed that planted 362 acres. This process has been repeated each subsequent year with 11,000 pounds of native grass and wildflower seed purchased in 2014. This year's seed (\$250,000.00 award in 2013) is enough to plant more than 1000 acres of Iowa roadsides to native prairie. In January of this year, the Iowa Transportation Commission approved 1 million dollars in total funding for five statewide projects through the new Transportation Alternatives Program. One of these five with statewide significance is a \$392,000.00 award, titled "University of Northern Iowa and the UNI Integrated Roadside Vegetation Management Program for Native Seed as County Roadside Vegetation for Diverse Habitat, Soils and Hydrology." Funding is available to cities, counties, school districts, or other eligible organizations through an annual application-based program. The most recent native seed award is through a new category listed as Community Improvement Activities.

#### ***4. Use of Technology***

County roadside programs make use of a number of new and emerging technologies as a means of maintaining efficiency. Examples include GPS tools to precisely calibrate herbicide applications as well as store roadside inventory data. In recent years, county IRVM programs have moved to web-based reporting for seed received through the annual purchase made by UNI as a concise data collection practice. The internet provides a means to increase the level of program understanding and acceptance.

The investment in technology by native seed producers continues to grow. Improvements in terms of species propagation and production have produced the quantities and diversity of the materials that are available today. Cleaning facilities are state of the art. Some work has been done to quantify genetic variation in Iowa's native plant populations. Isozymes of esterase and phosphohexose-isomerase have been used to analyze seeds from dozens of remnant populations. A DNA-technique called Amplified Fragment Length Polymorphism has been used to screen populations in nursery accessions. Reproductive success of reciprocal transplants based on survival, seed production, and seed viability has been assessed.

#### ***5. Cost of Program***

The investments in and the results of the Native Seed Distribution Program have been huge. Since 1998, the UNI Roadside Program has participated in the Native Seed Distribution Program through specifying, purchasing, and distributing seed. More than \$200,000.00 in federal funds has been secured annually to enable native right-of-way plantings in 82 different Iowa counties on more than 16,000 acres of Iowa's county roadsides.

Participating counties do not pay for this seed; rather they provide in-kind support through planting and maintenance. A wide variety of materials allow species to be matched to the soils and hydrology of individual planting sites. In-kind support for the seeding happens in the form of staff time and equipment used during planting and establishment. More than an eight-to-one return on investment has been identified through this long-running, successful program.

Immediate savings are realized by counties involved with the program. Local dollars are no longer necessary to purchase seed. Local dollars can be used to hire staff and provide other essential resources for local IRVM efforts. State funds such as those through the Living Roadway Trust Fund can be utilized for training, specialized equipment, and other necessary materials to keep Iowa's roadsides a relevant, vital resource for Iowa's citizens. Living Roadway Trust Fund dollars are awarded for eligible projects based upon their merit in meeting the program objectives established by the Iowa DOT under Iowa Code Section 314.22.

A single, joint purchase on behalf of all counties, such as the Native Seed Distribution Program can result in better prices when compared to individual counties making small purchases on their own. A large purchase also encourages the production of Yellow Tag, Source Identified Seed. By guaranteeing a percent premium for this seed, production by private growers has gone up, and seed prices have come down. The base bidding process gives consistency to the native seed industry. This annual purchase process allows for a base of native material to be grown, which in turn through bidding allows for excess inventory that is used elsewhere throughout our state.

#### **6. Results/Success of Program**

Roadside managers install and remove both woody and herbaceous plant material in Iowa's roadsides. Iowa Code 314.22 suggests that each county's 4000 plus acres of roadsides within transportation corridors are a resource to be managed for maximum benefit. The University of Northern Iowa Roadside Office supports this idea. The Roadside Office has helped launch and maintain IRVM programs in more than 60 Iowa counties. This involves continuing with local organizing, meetings, presentations, providing materials, assisting with grants, etc., in each county they support. Since 1998, the UNI IRVM program has obtained more than \$2.2 million in Transportation Enhancement funds from the federal government and the Iowa DOT for annual purchases of prairie grass and wildflower seed for the counties that wish to plant them. UNI has hosted an annual roadside conference every year since 1987. Linn County co-hosted the annual conference in 1995.

The UNI Roadside Office has recently presented at or contributed to several statewide conferences attended by people from all counties. County Engineers Conference, County Conservation Board Conference, County Weed Commissioner's Conference, Iowa Parks and Recreation Association, ISU's Turf Grass Conference, ISU's Shade Tree Short Course, Iowa DOT's Summer Maintenance Expo, Loess Hills Prairie Seminar, Pheasants Forever annual conference, ISU's Ag & Environment Conference, Iowa Women in Natural Resources and the Iowa Prairie Conference are examples.

Through support from the Iowa Department of Transportation Living Roadway Trust Fund (LRTF), the UNI Roadside Office has produced numerous materials for statewide distribution. Tens of thousands of brochures have been distributed statewide and nationwide. These include: the annual IRVM

calendar/poster, eight brochures, a newsletter, a traveling display, videos, an IRVM Technical Manual, PSA's and press releases to support local efforts. Practice-based surveys and research have generated useful data and resources for all counties, regardless of whether or not they implement IRVM. The Office now manages an email list-serve with more than 200 county contacts, including Roadside Managers. The office has produced a roadside prairie remnant and prairie planting registry which includes a page and map for every county. With a grant from the Iowa Highway Research Board the UNI Roadside Office also produced a manual on Tree and Brush Control for County Road Right-of-Way.

Local Source Identified seed has improved the sustainability of our native roadside plantings. Our first Linn County contribution to the Iowa Ecotype Project was Side-oats Grama, collected from a native remnant in 1990 that is still intact today. Our last contribution to the project, Grass-leaved Goldenrod, was collected from an inventoried rural roadside remnant, now a residential city street. The 1971 native research planting north of Lisbon mentioned earlier in this summary, designed and installed by Biologists, is better today than the day it was installed. Our 1991 demonstration project planted at Iowa DNR's Pleasant Creek has repeatedly passed the Iowa Crop Improvement Association's Weed Seed Free Forage and Mulch certification inspection. This certification occurs now without spot spraying, without selective-responsible mowing, without prescribed burning; but rather entirely with species competition. The Native Seed Distribution Program prioritizes the use of local source identified seed that has led to this sustainability, and has increased the availability of this seed to a regional level.

Established native plants perform well without the use of fertilizer and have deep root systems that hold soil. Root channels allow water to penetrate, rather than run off-site. Native prairie plants in roadsides provide surface roughness to retain rolling and skipping snow during winter months, reducing road icing and maintenance costs. The leaf surface of native vegetation intercepts rainfall, which also improves infiltration. Perhaps the best example of the relationship of native plants to the ecological integration that is mentioned as an objective of Iowa Code 314.22 is a recent list from the University of Delaware. For the complete list, see <http://copland.udel.edu/~dtallamy/host/index.html> .

### **7. *Worthiness of an Award***

2014 marks the 25<sup>th</sup> Anniversary year for IRVM in Iowa, and the UNI Roadside Program. More than sixty counties statewide participate at varying levels, with full-time staff and seasonal workers helping promote prairie, beautifying the landscape, and creating a more resilient, ecologically sound transportation corridor through Iowa's more than 750,000 acres of roadsides. The dollars awarded to the Native Seed Distribution Program in 2014 through the Transportation Alternatives Program (for calendar year 2015 seed purchasing) is the first year of the Community Improvement Activities category.

Since 1988, the Native Seed Distribution Program has:

- Provided native grass and wildflower seed to 82 out of 99 counties.
- Helped establish native prairie in more than 1/5 of Iowa's statewide secondary road system.
- Encouraged participation in Integrated Roadside Vegetation Management in Iowa.
- Allowed counties to have more diversity in roadside plantings for wildlife and pollinators.
- Reduced overhead costs for county roadside management by supplying materials.
- Provided an economic incentive to native prairie seed producers to grow Iowa-origin seed at an affordable price.