ESSMENT OF MINNESOTA'S NATIVE WILDFLOWER AND GRASS SEED MARKET

1993

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MINNESOTA STATE LEGISLATURE

An Assessment of Minnesota's Native Wildflower and Grass Seed Market

Minnesota Department of Agriculture

Market Development and Promotion Division

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I. INTRODUCTION

Minnesota's native wildflower and grass seed industry is a small but rapidly growing industry. During the past decade, the production and utilization of native seeds have increased at an unprecedented rate. This was largely due to efforts of both the public and private sectors to improve the natural environment and eco-system; to protect the state's soil and water resources through the restoration of native prairies and land reforestation, and to provide natural shelters for wildlife habitat.

In the 1992-1993 crop year, the estimated annual sales of native wildflower and grass seeds in Minnesota approached ten million dollars, according to industry sources. This figure included revenues from sales of seeds, seeded plants, and also service contracts for seeding, planting, land preparations and other related consultation work. The most noticeable development in the native seed industry was the service-related sales or the new value-added component of the native seed business, which many believe will increase more rapidly than previously expected.

Traditionally, state and federal government agencies were predominant buyers and users of native prairie seeds. In recent years, however, an emerging commercial market has drawn more and more non-government users, such as, private companies and general landscapers who incorporated native seeds and plants into their various landscaping or land improvement projects. It is expected this consumer segment will be the main driving force for future market development.

However, Minnesota's native seed industry is still undergoing profound changes in its course of growth and development. Currently, most of the growers have small-scale operations and have not yet reached their full production potential. One of the most pressing issues facing the industry is the undefined market and market structure. Furthermore, lack of market information and statistical data on production and consumption, uncertainty about the market's future, and unpredictable market fluctuations have become major restraints and concerns for Minnesota's native seed producers. All these are common obstacles that most new business ventures experience during the early stages of development.

The objective of this market research is to address the supply and demand issues through the examination and assessment of Minnesota's native seed industry and its current and potential markets. Production and consumption information is assembled and analyzed to provide producers, consumers, investors and policy-makers with much needed information for decision-making.

II. Production and Supply of Native Wildflower and Grass Seeds

Minnesota's native wildflower and grass seed production started a decade ago with a new and small market niche that initially drew very little attention for the first few years. At the time, the majority of native seed production and collection went toward building the seed stock and establishing small-scale production plots. To start a native seed business, producers had to first hand-collect "foundation seeds", the initial seed source, from undisturbed natural sites, or purchase such seeds from a supplier. Because of the limited quantities of foundation seeds, producers could only gradually build their seed stock through planting and re-planting. Therefore, it took at least three to five years to establish an adequate production field and harvest a mature crop for commercial sale.

In the mid-1980's, the Conservation Reserve Program (CRP) was implemented by the federal government, creating an enormous market for native or other prairie seeds, as well as bringing unlimited opportunities to an infant industry. Not surprisingly, the minimal available quantities of native seeds failed the overwhelming market demand, which resulted in high prices and a dissatisfied market. The negative effect has lasted until this day, when native seed users still refer to "over-priced and under-supplied" situations even though profound changes have since taken place in the marketplace.

In an effort to assess the current production and supply of native wildflower and grass seeds in Minnesota, the Marketing Division of the Minnesota Department of Agriculture (MDA) conducted the "Native Wildflower and Grass Seed Producer Survey" (Appendix 1: "Native Wildflower/Grass Producer Survey Questionnaire") in the summer of 1992. The survey questionnaire was mailed to all current native seed producers in the state and helped generate production information and statistical data including: 1) current production; 2) production acreage; 3) geographic distribution of production and collection sites; 4) available species; 5) projected production expansion; and 6) major obstacles to industry development (from the producers point of view). The majority of Minnesota's native seed producers participated in the survey, providing a sufficient across-the-board representation of all variables such as production scale, management practice, customer base, production potentials, specialties and expertise. Some non-participants were surveyed via telephone interviews. After compiling and analyzing the survey results, a comprehensive summary of the supply side of the native seed market was completed.

A. Production and Supply

Minnesota's native wildflower and grass seed production is composed of two types: seeds harvested from established production fields, and seeds collected from natural sites and prairies. Currently, over one-half of the commercially available seeds come from cultivated production while the balance is acquired by wild collection. Among producers, 85 percent produce seeds through cultivation but 55 percent of them also collect from natural sites to supplement certain market niches or to provide for foundation seeds. Fifteen percent of producers depend solely on wild collection for seed harvests. The combination of cultivated and collected native seeds in the marketplace gives buyers and users an extended range of options regarding quality, quantity, variety, seed mixes and ecotypes.

1. Annual Production and Value

Due to the small size of Minnesota's native seed industry, there has been until now no government agricultural statistical reporting on the annual output quantity or value of the native wildflower and grass seed production. The 1991 Native Wildflower and Grass Seed Producer Survey was the first attempt to gather the primary output data and relevant production statistics. Based on the production estimates obtained through the producer survey and telephone interviews, the commercially produced native seeds totaled 127,000 pounds in 1991, of which, approximately 96 percent were grass seeds and 4 percent were wildflowers. However, as was indicated in the producer responses, it would be extremely difficult to estimate the total value of the native seed production due to the vast range of species produced and the enormous price difference between and among various wildflower and grass seeds. Unlike other field crops such as corn and soybeans, the native seed crop has no "medium" or "average price" that can reflect a realistic value of the aggregate production. Most producers could not provide a complete sales volume and price break-downs for some 300 species produced in Minnesota. Seed prices spread from $3.00 per pound to well over $1,000 per pound — a 3,333 percent difference. For computation purposes, the following table was developed that employed medium prices to provide a hypothetical output value.

The 1991 Producer Survey shows that 50 percent of the native seed producers had been in production for less than five years; only 11 percent have been in production for more than ten years. Ninety-four percent of producers grow and sell grass seeds or seedlings, while 82 percent grow and sell wildflower seeds or seedlings. Seventy-nine percent of producers sell pure seeds; seventy-one percent sell seed mixes; and forty-three percent sell seedlings, plants or sod.

2. Acreage in Cultivation and Wild Collection

Minnesota's commercial native seed production takes place in twenty-five counties across the state, with an estimated 2,000-plus acres of production fields and wild collection sites. This figure does not include prairie remnants or roadsides. Cultivated acres account for less than half of the total acreage, but have been increasing due to production expansion and the establishment of new production fields. Many of the wild collection areas are leased prairie lands from farmers or private landowners, or public land permitted for seed collection by Minnesota Departments of Natural Resources and Transportation, or the U.S. Fish and Wildlife Service under the United States Department of Interior. Harvests from such wild prairies will remain as a vital source of production and continue to provide foundation seeds, new gene-pools, and commercial seed crop for sale.

Production Output and Value

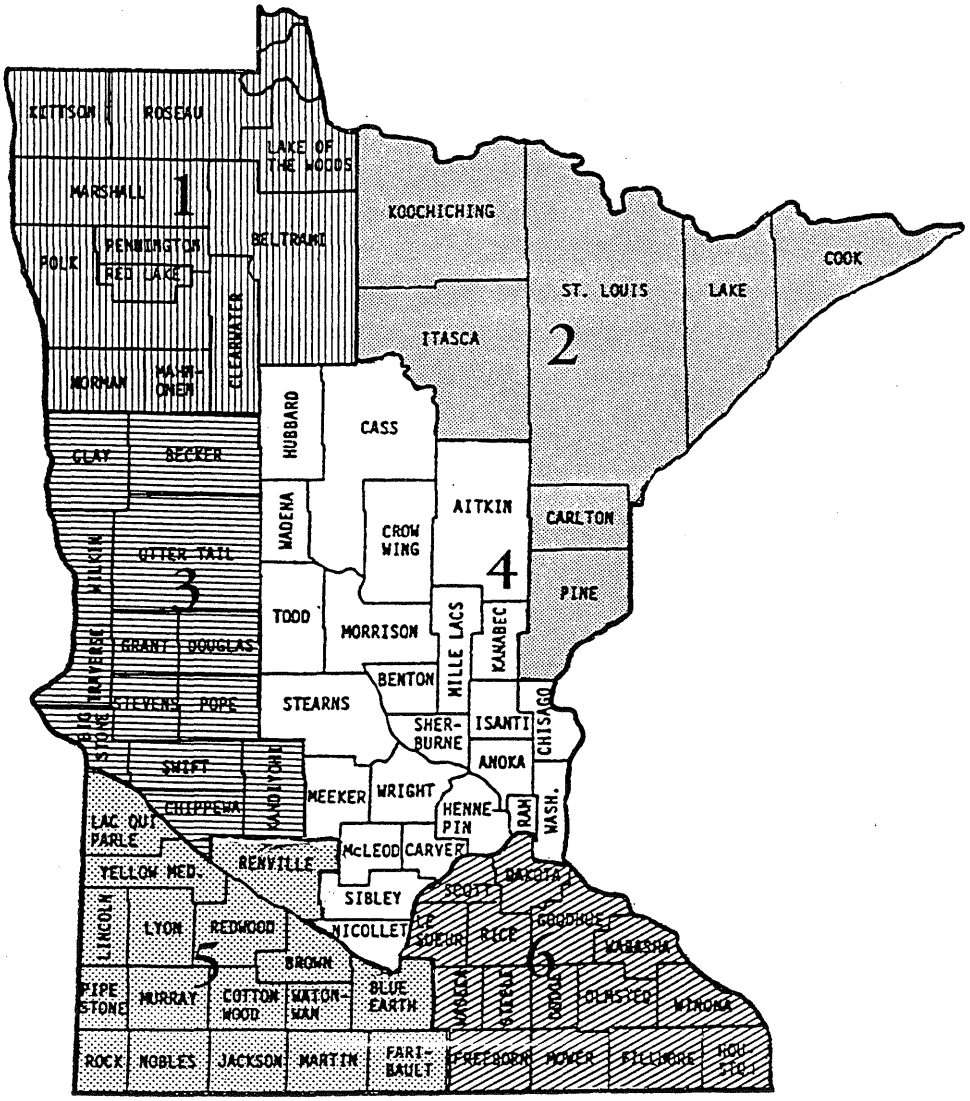
	Production (lb)	Medium Price ($ per lb.)	Total Value of Production
Grass Seed Production (96% of Total)	121,920	$ 9.70	$1,182,624
Wildflower Seed Production (4% of Total)	5,080	$110.00	$ 558,800
Total Production	127,000		$1,741,424

3. GEOGRAPHIC DISTRIBUTION OF NATIVE SEEDS PRODUCTION

Minnesota's current native seed production has a wide array of geographic locations and natural landscapes. To better categorize the production sites, Minnesota counties are grouped into six regions: Northwest — Region 1, Northeast — Region 2, West-central — Region 3, East-central — Region 4, Southwest — Region 5, and Southeast — Region 6. This also helps to define the ecotypes produced and used in a specific geographic region.

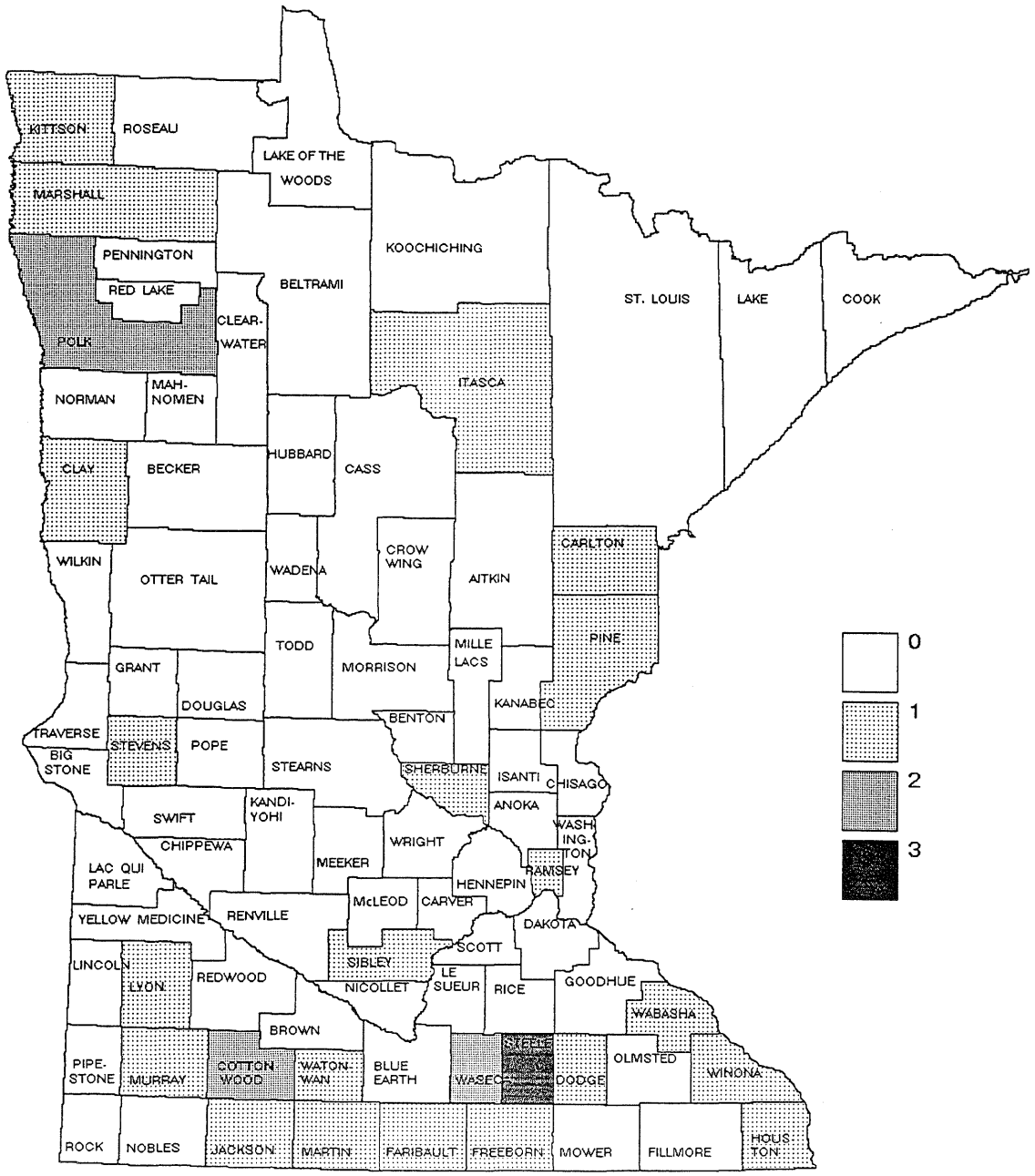
FIGURE-1

Minnesota Native Wildflower and Grass Seed Regions



In 1991, almost one-third of Minnesota counties hosted one or more native seed production and/or collection sites, which stretched from the northwest corner of the state down to the southern border. The twenty-five producing counties included: Kittson, Marshall, and Polk of Region 1 (Northwest); Itasca, Carlton, and Pine of Region 2 (Northeast); Clay and Stevens of Region 3 (West-central), Sherburne, Ramsey and Sibley of Region 4 (East-central); Lyon, Murry, Cottonwood, Jackson, Watonwan, Martin, and Faribault of Region 5 (South-west), and Freeborn, Waseca, Steele, Dodge, Wabasha, Winona, and Houston of Region 6 (Southeast). The site map indicates that 1991 production was concentrated in the southern part of the state, mainly south of the Twin Cities metro area.

FIGURE-2 WILDFLOWER PRODUCTION IN MINNESOTA COUNTY PRODUCTION SITES



4. Species Information

As mentioned earlier, Minnesota's native seed producers supplied approximately 300 species of wildflower and grass seeds to the market in 1991 (Appendix 4: "Native Wildflower/Grasses By ID Code"). The best selling varieties (in terms of quantities sold) included the following grasses and wildflowers: Switch Grass (Panicum virgatum), Big Bluestem (Andropogon gerardi), Indian Grass (Sorghastrum gerardi), Side-Oats Grama (Bouteloua curtipendula), Native Tall Grass Prairie Seed, Purple Prairie Clover (Petalostemum purpureum), Maximillian Sunflower (Helianthus maximilliani), Lead Plant (Amorpha canescens), and Yellow Coneflower (Ratibida pinnata). Some of these varieties are produced in large volumes, from hundreds to thousands of pounds, while others, mostly forbs, may only be available by the ounce or even one-half ounce.

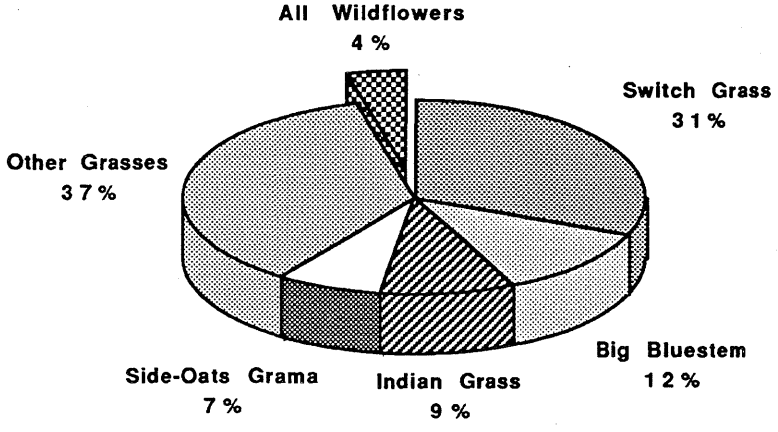
Every year, new grass and wildflower seeds are added to the species list as producers plant more "experimental" seeds in their production fields in order to explore new market niches and expand the diversity of marketable seeds. Usually, producers first offer a new and unknown species to the market. If successful, in one or two years, this new species will draw attention from buyers and users, and eventually gain market acceptance.

Some of the best selling species are listed to the right by common name and scientific name with estimated quantities produced.

Species	1991 Production Estimates
Grasses	
Switch Grass (Panicum virgatum)	40,000 lbs.
Big Bluestem (Andropogon gerardi)	15,000 lbs.
Indian Grass (Sorghastrum gerardi)	12,000 lbs.
Side-Oats Grama (Bouteloua curtipendula)	9,000 lbs.
Native Tall Grass Prairie Seed	5,000 lbs.
Big Bluestem "Roundtree"	3,000 lbs.
Big Bluestem "Bonilla"	2,500 lbs.
Wildflowers	
Purple Prairie Clover (Petalostemum purpureum)	55 lbs.
Maximillian Sunflower (Helianthus maximilliani)	25 lbs.
Lead Plant (Amorpha canescens)	25 lbs.
Yellow Coneflower (Ratibida pinnata)	20 lbs.

FIGURE-3

1991 Production: Major Species (lb.)



B. NATIVE WILDFLOWER AND GRASS SEED PRODUCERS

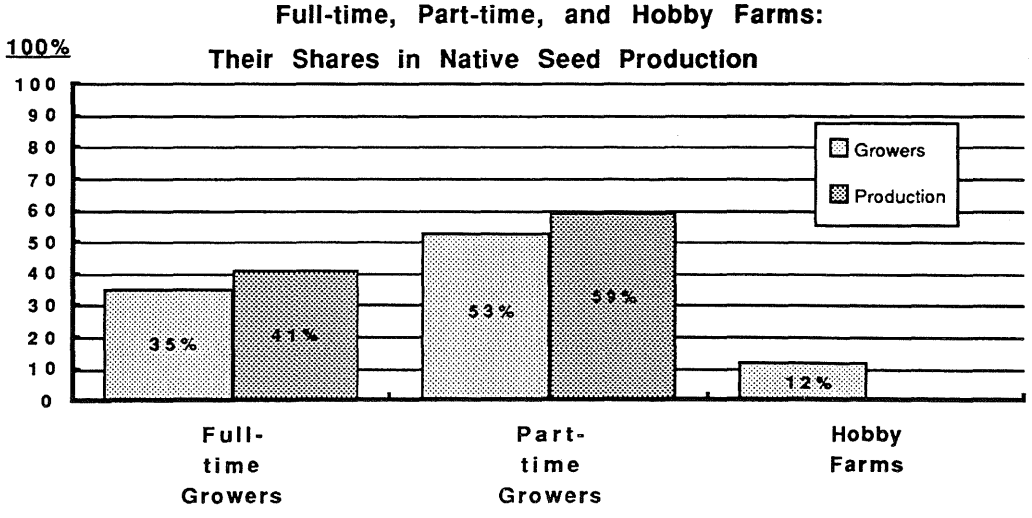
1. PRODUCER INFORMATION

Thirty-five percent of Minnesota's native seed producers devote full-time to growing or collecting seeds. They contribute over 60 percent of seed sold in the consumer market. Another 55 percent produce on a part-time basis, providing less than 40 percent of the total quantity. The last 10 percent are hobby farm operators, who have yet to reach a salable scale. Their seed production currently serves in-house use: establishing production fields and building seed stock.

2. SIZE OF OPERATIONS

"Small-scale production" best describes Minnesota's native seed industry. Most producers operate on less than 30 acres of production land and wild collection fields. Because of time-consuming labor intensive production methods, small operations, especially at the early stages, prove to be the most feasible and manageable. Skills in the areas of capitol investment, production technology, business expansion, quality control and market development must be developed and activities carefully coordinated by the producer. Unfortunately, since the native seed operation is a non-traditional farm enterprise in Minnesota, adequate information, technology, and equipment, are not always readily available to the new producer. Finally, the small producer must often do the research, develop the skills (sometimes their own technology) and perform all these management and labor functions alone or with minimal assistance. General advice from industry members is to start small and grow carefully.

FIGURE-4



C. PRODUCTION COST

Based on information provided by native seed producers, there is no "average" or "standard" production costs that can accurately reflect the capital and labor inputs different producers invest in their own seed production. As a result, costs vary considerably, depending on many variables, such as: land conditions, species grown, length of production cycle, cultivation methods, grower's experience and expertise, overhead, and intensity of labor involved in production management.

For cultivated production, the cost factors to be considered include land (either purchased or leased), equipment, supplies, seed, labor, fuel and other energy consumption, chemicals, cleaning or processing equipment, or fees paid for such services if there are no in-house facilities. To many producers, especially those who grow wildflowers or have a smaller production acreage, labor input ranks high on the list, especially when hand-weeding, hand-harvesting, hand-collection, and hand-cleaning is part of the production practice.

According to industry estimates, overall production costs run from $300 to $1,000 per acre of crop for grasses and from $1,000 to $10,000 per acre of crop for wildflowers. The seed producers who were interviewed all came up with vastly different figures, because each one of them is doing it differently than the others. Consequently, there is no consensus on the cost estimate that this study seeks to establish. To understand the basic cost factors, we must first review the production process that incurs various investments and production expenses.

1. PRODUCTION CYCLE:

Most producers begin initial production with a small piece of land and hand-collected foundation seeds. After the initial seeding, the first few years yield no salable crop as all seed is consumed in re-planting and field expansion. Upon achieving a sufficient size, producers finally have a mature crop to sell. Depending on the geographic location and seed species in production, there may be a 3 to 5 year "lag time" before any capitol or labor investment can be recovered. The "opportunity cost" or potential earnings from investments made during this time period if the producer engaged in another occupation has to be incorporated into the cost factor.

2. LABOR INPUT:

From planting to harvesting, field work is very labor intensive for many producers, especially those who grow wildflower seeds. Initial planting, weed control, hand harvest of mixed seed varieties that mature at different times of the season, and post-harvest seed cleaning all require intensive hand labor. In addition, field preparation and routine management such as spraying and burning also require heavy labor input. For the majority of the producers, field labor or man-hours constitute one of the biggest cost items. In 1991, wages for Minnesota farmers or farm workers averaged $5.63/hour, according to agricultural statistics reports. However, total labor costs are extremely hard to determine, as each producer devotes various amounts of man-hours in native seed production depending on what they grow and how they grow it.

3. Capitol Investment and Operating Cost:

LAND: Initial land purchase may range from $500 per acre to $1,200 per acre, depending on the geographic location and quality of land. To lease or rent land, producers pay an average of $90 to $120 per acre per year.

EQUIPMENT: Producers either purchase new or used equipment or utilize existing equipment with some modifications to accommodate seed production. For seed cleaning and processing, some special equipment may be required. Cost of maintenance and depreciation should be included.

INITIAL SEED SOURCE: Some producers purchase rather than collect foundation seeds when establishing production fields. Per acre cost of seeds often range from $100 per acre to $500 or more per acre, depending on the species grown.

CHEMICALS: Fertilizers and herbicides are used in production fields. Cost of chemicals ranges from $30 to $60 per acre per year.

ENERGY USE: This includes cost of fuels and electricity for operating machinery and equipment for field work such as tilling, harvesting, etc.

OVERHEAD: Administration, marketing, promotion, and miscellaneous operation-related expenditures may vary from producer to producer.

If a production field yields 100 pounds per acre of grass seeds at a selling price of $9.00 per pound, the grower will receive $900.00 of sales revenue per acre. Less production expense, the profit margin can be very different for each producer. It should be noted that the selling price in these small specialized markets can be affected drastically by relatively small fluctuations in supply and demand, bringing risks to the producer's revenue and profit.

D. Native Wildflower and Grass Seed Prices

As a high-valued crop, native wildflower and grass seeds carry an extremely broad price range, a result of many deciding factors for each individual species, such as, cost of production, quantity produced in a particular year, consumer demand, and other unique characteristics of the species. For native grass seed, which is usually purchased by the pound and sometimes in large volumes, prices vary from $3 per pound to $70 per pound. The most popular species sell for $7.00 to $10 per pound. Wildflower seeds, on the other hand, are a more valuable commodity and normally sell by the ounce. Prices start from $3.50 per ounce (about $60 per pound), and reach an upper range of $150 to $200 or more per ounce. At the higher price scale, seeds may be sold in lesser quantities than ounces.

Prices for the same grass or wildflower seed also vary from producer to producer. For a specific species, the quoted price can be $20 per pound or $100 per pound. It is due to the methods of cultivation, economies of scale, and experience or expertise of the producer. As a result, producers often buy seeds from each other in order to "stabilize" a potentially volatile price situation. The "flexibility" of seed price to the producers is not a marketing advantage because consumers find it inconsistent and unpredictable, causing difficulties in making purchasing decisions.

E. Markets

Minnesota's native wildflower and grass seed markets consist of wholesale, retail, government purchase, and out-of-state sales. In 1991, all growers sold seeds or seedlings in the wholesale market or to the government. Eighty-six percent had a retail market, and 71 percent marketed their products to other states including Iowa, North Dakota, South Dakota, Wisconsin, Illinois, and Canada. Over

two-thirds of producers re-invested portions of the seed production for in-house use — i.e., re-planting and field expansion.

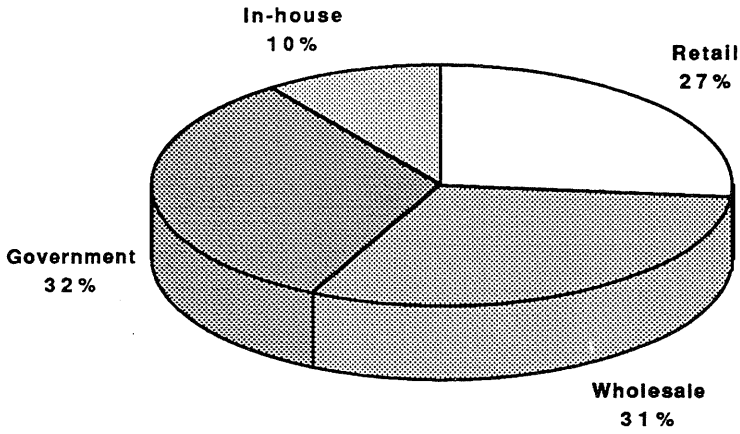
In the retail market, on-farm sales and mail order were most popular, representing 30 percent and 36 percent of total retail sales respectively. Retail customers are mainly farmers, landowners, businesses, and homeowners. The wholesale market serves volume users including: private businesses and seed companies, who purchase 81 percent of wholesale seeds; general landscapers, who purchase 13 percent; and retail nursery and garden centers, who purchase 6 percent. Government procurement always involves large quantities and varieties of seed species. Buyers in this group include Minnesota Departments of Transportation and Natural Resources, U.S. Fish and Wildlife of the U.S. Department of Interior, and local government agencies such as counties, cities or townships.

F. Production Trends and Projections

The annual production and sales of native wildflower and grass seed have been increasing steadily during the past ten years, especially since the late 1980's. Initially, the production expansion stemmed from a new market demand when the Conservation Reserve Program (CRP) was implemented. Since then, there have been many other driving forces that contributed to the development of the native seed industry, including environmental concerns, increased public awareness and consumer acceptance, continued government purchase and utilization, and implementation of various nature conservancy programs. It is also believed that earlier promotional efforts have started to pay off.

FIGURE-5

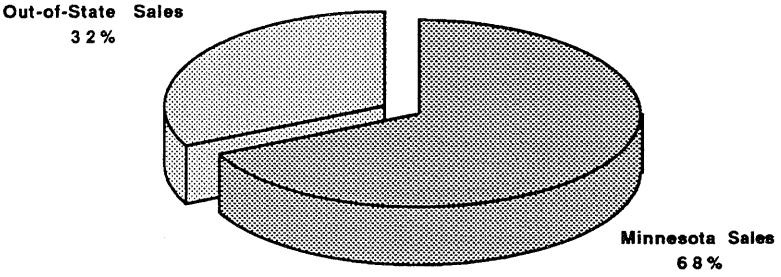
Minnesota's Native Seed Market



Overall, the retail market share was 27 percent of total sales in 1991, while wholesale had 31 percent, government purchase, 32 percent, and producers' in-house use, 10 percent. In-state sales held a 68 percent market share, and out-of-state sales had 32 percent.

FIGURE 6

Native Seed Sales:
Minnesota Market & Out-of-state Market



Only 17 percent of seeds and seedlings were sold beyond a 200-mile radius of the production site, according to the 1991 Producer Survey. Of the 87 percent of seeds and seedlings that were marketed within a 200-mile radius, 51 percent were sold within a 100-mile radius, and 34 percent were sold within a 50-mile radius.

Producers reported an average annual increase of at least 20 percent to 30 percent of production and sales in 1990, 1991, and 1992. The fastest growing market segments include the following:

1. Commercial retail and wholesale or non-government purchase:

Although government has been, and still is, one of the biggest buyers, sales to the commercial retail and wholesale market have been going up at a higher rate compared to the annual increase in government purchases. Producers became less dependent on the one major customer than they had been in the previous years. Greater commercial market development is considered the leading factor in the latest production expansion.

2. Increased production and utilization of wildflower seeds:

Native wildflower seeds have always held a very small percentage of native seed production and sales, due to the more complex, difficult cultivation process, and higher prices. However, more consumers choose to buy wildflowers as they become more informed or have seen previous good results of the plantings. Government users also plan to increase wildflower seed purchases in proportion to grass seeds in the future.

3. Out-of-state sales:

The last few years have seen an increase in the number of non-Minnesota buyers from the surrounding midwestern states. This user group includes government buyers such as state agencies with large procurement potentials.

Most producers have increased cultivation acreage, seed species, and total production since the 1991 Producer Survey. As more production fields mature and new producers start producing salable seeds, the available native seed supply will generate more markets, uses, and public interests. The projected 20 percent to 30 percent annual increase in native seed production for the next two to three years will provide at least an additional 25,000 to 38,000 pounds of marketable seeds to the consumers, whose number has been rapidly increasing. Better prices, higher quality seeds, seed mixes, seedlings, and more diversified post-sale services will further enhance the marketability and utilization of native wildflowers and grasses. Producers will become more skilled and sophisticated in production and marketing as the consumer market gets more competitive due to increased volumes and number of suppliers. Many producers have already started to diversify their operations by offering more service-related sales such as installation contracts and consultation services. This value-added service activity will contribute an increasingly large share of earnings and profits in the future and help attract more large volume users as well as individual consumers.

The producer group will benefit from the newly founded "Minnesota Native Wildflower and Grass Producers Association" that organizes the cooperative efforts to further develop the industry and provides leadership and a unified voice for Minnesota's native seed growers.

G. MAJOR OBSTACLES TO INDUSTRY DEVELOPMENT

Many producers reported that they had not been operating at full production potential due to various reasons, i.e., financial, technical or marketing constraints that most of them had encountered at different stages of production. Over 40 percent of producers listed "lack of financial resources" as one of the limiting factors in native seed production. Thirty-three percent considered "inadequate technical assistance or information" as another concerning issue. Seventy-three percent identified "market constraints" as the single biggest obstacle for the industry's future expansion. Twenty percent commented on lack of public and consumer education, and 13 percent expressed dissatisfaction with the current public policies such as state support and initiatives for industry development.

Despite all the below-mentioned obstacles and concerns, many producers remain optimistic and have committed more land and labor resources to increase their current production capacity. This is due to the fact that the production is *market-driven* and the market demand for native wildflowers and grass seeds in Minnesota continues to be strong. The following chapter will examine the consumption and utilization of native seeds to provide some useful analyses of current markets and the outlook for the future.

1. FINANCIAL:

This refers to a lack of financial resources or unavailability for production and operating loans and unwilling lenders. Due to the risks involved in native seed production, a long production cycle, and consequent delayed capital repayment on any borrowed funds, very few public or private lenders or financial institutions are willing to make loans to native seed producers.

2. TECHNICAL:

Producers have had difficulties finding technical resources. There is very little technical information or assistance available to growers regarding methods of cultivation and production management. Up-to-date research or technical literature and manuals are also lacking.

3. MARKET CONSTRAINTS:

For producers, market constraints include many marketing aspects, ranging from the unavailability of market information and data, undefined consumer needs, uncertainty about the future's market, competition, low profit margins, inconsistency in government purchases and possible over-supply. Producers find it difficult to make market projections and do production planning because of these factors. The market unpredictables may be very detrimental to native seed producers who have to bear the production costs for three years or longer before harvesting a mature crop for sale. If the market situation changes during this extended period of time, the producer's final sales and profitability will be affected. It is risky to produce a crop without sufficient market information or short-term and long-term projections. As a result, market fluctuations have already caused large carry-overs for some of the producers. To achieve full production potentials of the native seed industry, the above-mentioned issues need to be addressed.

4. CONSUMER EDUCATION:

Lack of consumer education and market promotion is perceived by native seed producers as another barrier to production expansion, as many uninformed consumers are not able to distinguish "native" wildflowers and grasses from "wild" flowers and grasses. Many consumers shy away from native wildflower and grass seeds but opted to buy imported or genetically improved cultivars simply because the latter cost less. Up till now, there has been no organized effort to educate the public and potential users on the advantages of Minnesota origin seeds. The market potential has not been fully explored.

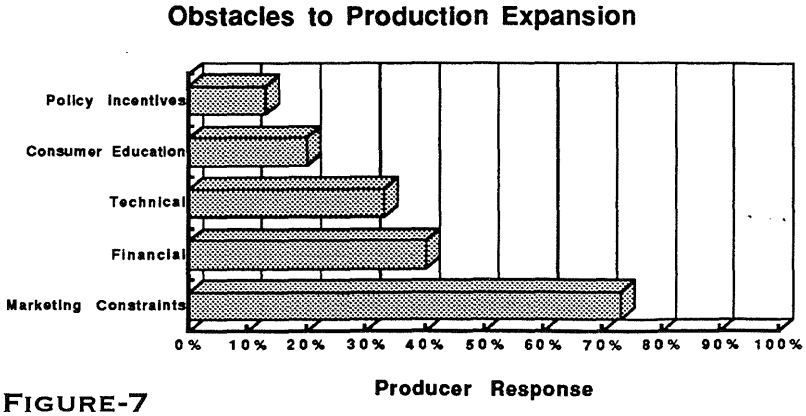


FIGURE-7

5. STATE POLICY INCENTIVES: Last but not least, producers are concerned about the dwindling state agency purchases, certification standards, competitive production by state agencies, and the short-term and long-term policy initiatives that may either invigorate or hinder industry growth.

III. DEMAND AND UTILIZATION OF NATIVE WILDFLOWER AND GRASS SEEDS

The commercial utilization of native wildflower and grass seeds in Minnesota was initially explored by a few government and private users in the late 1970's and early 1980's. These early pioneers started planting native seeds in order to preserve and re-generate these diminishing but potentially beneficial native prairie species. During the early years, the scarcely available seed source prevented adequate expansion for commercial use and resulted in high purchase prices. However, the small scale also enabled the producers and users to focus on pilot production and experimentation in order to build experience and expertise in seed cultivation and commercial planting.

Gradually, the commercialization of native prairie seeds started to gain popularity. In the mid-1980's, more consumers, especially farmers enrolled in CRP, became interested in prairie grasses and wildflowers that were of Minnesota origin. As a result, seed purchase and utilization began to increase. This new market development received support from the Minnesota state government. One of the earliest state initiatives was the creation of the "Minnesota Wildflower Task Force" in 1987, whose duties were to help increase the public awareness of the benefits of native prairie flowers and grasses and to promote their uses through educational approaches.

During the late 1980's, market development further accelerated as a result of continued increase in demand and utilization. The number of producers also doubled. Large volume sales to government agencies remained strong, while more and more medium and small-volume users entered the marketplace. Generally, government purchases absorbed the lion's share of the native seed supply, a situation that had created adverse market fluctuations during budget shortfalls which led to drastically reduced seed purchases. The growing number of private commercial users, however, could help reduce such impacts by bringing stability and profitability to the native seed market. Since the early 1990's, strong commercial sales have helped to strengthen the market structure and supply-demand mechanisms as commercial users have become more active in seeking seed sources, supplies, or installation contractors. The private sector started to play an increasingly significant role in market expansion. In 1992, the volume of sales reached an all-time high.

In order to provide a comprehensive assessment of the current and potential demand for native wildflower and grass seeds, a consumer survey was conducted in 1992 to assemble actual consumption statistics. The survey drew participation from all major native seed users and potential users in Minnesota. Through the cooperation of the Marketing Division and the Agriculture Statistics Service of the Minnesota Department of Agriculture, a survey questionnaire was developed (Appendix 2: "Native Wildflower/Grass Seed Consumer Survey") to generate statistical information and data which included the following:

- *Current market demand and utilization of native seeds;*
- *Geographic areas of seed consumption;*
- *Seed sources;*
- *Consumer information;*
- *Species in demand;*
- *Consumer market trends and projections; and*
- *Limiting factors or obstacles in native seed utilization.*

Through extensive research work, the Marketing Division developed a list of current and potential native seed users including wholesale and retail nursery and garden centers, green-house facilities, landscaping firms, construction contractors, and federal, state, and local government agencies. The consumer survey was designed for institutional or volume users, and therefore, did not include individual users such as private landowners, homeowners or farmers. More than six hundred consumer survey questionnaires were mailed to the prospective participants throughout the state. Twenty-eight percent responded to the survey, a considerably higher-than-average percentage rate that indicated an interest and enthusiasm from consumers about the uses of native plant species.

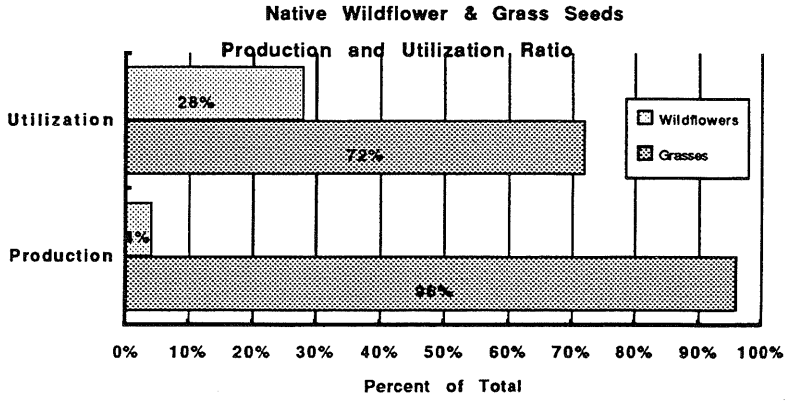
Among the survey respondents, 35 percent were identified as current users or potential users, who had either purchased and used native prairie seeds (29 percent) or had made definite plans to do so in the near future (6 percent).

The majority of users, 72 percent, reported to have purchased and used native seeds for five years or less; 24 percent had purchased and used native seeds for the past five to ten years, while 7 percent had purchased and used native seeds for more than ten years. In general, native grass seeds had been in use for a longer period of time, were purchased in larger quantities, and had a larger number of users than wildflowers.

A. CURRENT MARKET DEMAND AND UTILIZATION OF NATIVE SEEDS

In Minnesota's native seed market, the overall consumption volume falls into the vicinity of 97,000 pounds annually, of which, approximately 72 percent were grasses and 28 percent were wildflowers. In comparison, Minnesota's native seed production has a 96 percent grasses and 4 percent wildflowers ratio mix, which creates a discrepancy between market supply and demand. The discrepancy has caused confusion and misjudgment in the marketplace as producers and consumers became frustrated due to different expectations.

FIGURE-8



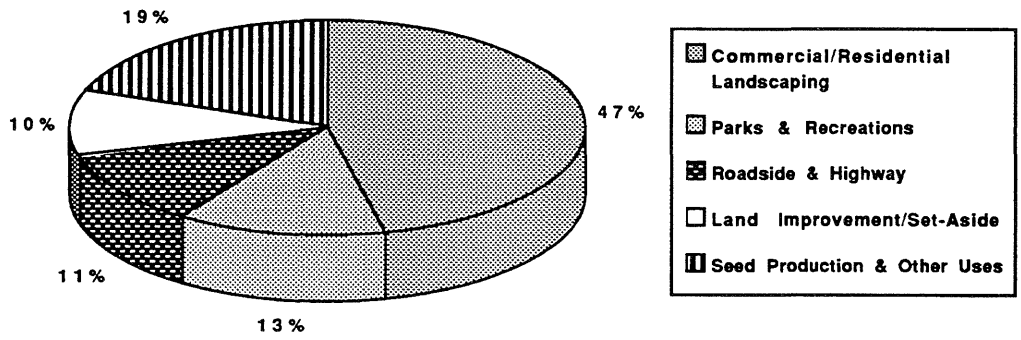
The latest report from the native seed producers and consumers revealed that the rate of increase in market supply and demand for wildflowers had exceeded that of grasses, and the trend will continue in the coming years. However, in their attempt to adjust to the growing demand for wildflowers and grasses, producers need to exercise caution when making production expansion plans to avoid unjustified shifts or even over-supply of either wildflowers or grasses.

In addition to the Minnesota market, Minnesota producers also supply approximately 40,640 pounds of seeds to out-of-state buyers, whose numbers have been increasing. The annual carry-over of seed stock is estimated at 20 percent of total production, or 25,400 pounds. The carry-over portion is either sold in the following year or kept for in-house use.

Besides seed sales, other marketable products and services such as seedlings or plants, land preparation, installation and custom planting, post-planting management, and consultation services all play an important role in continued market expansion. These products and services enhance sales activities and add value to a basic product.

FIGURE-9

Native Seed Utilization

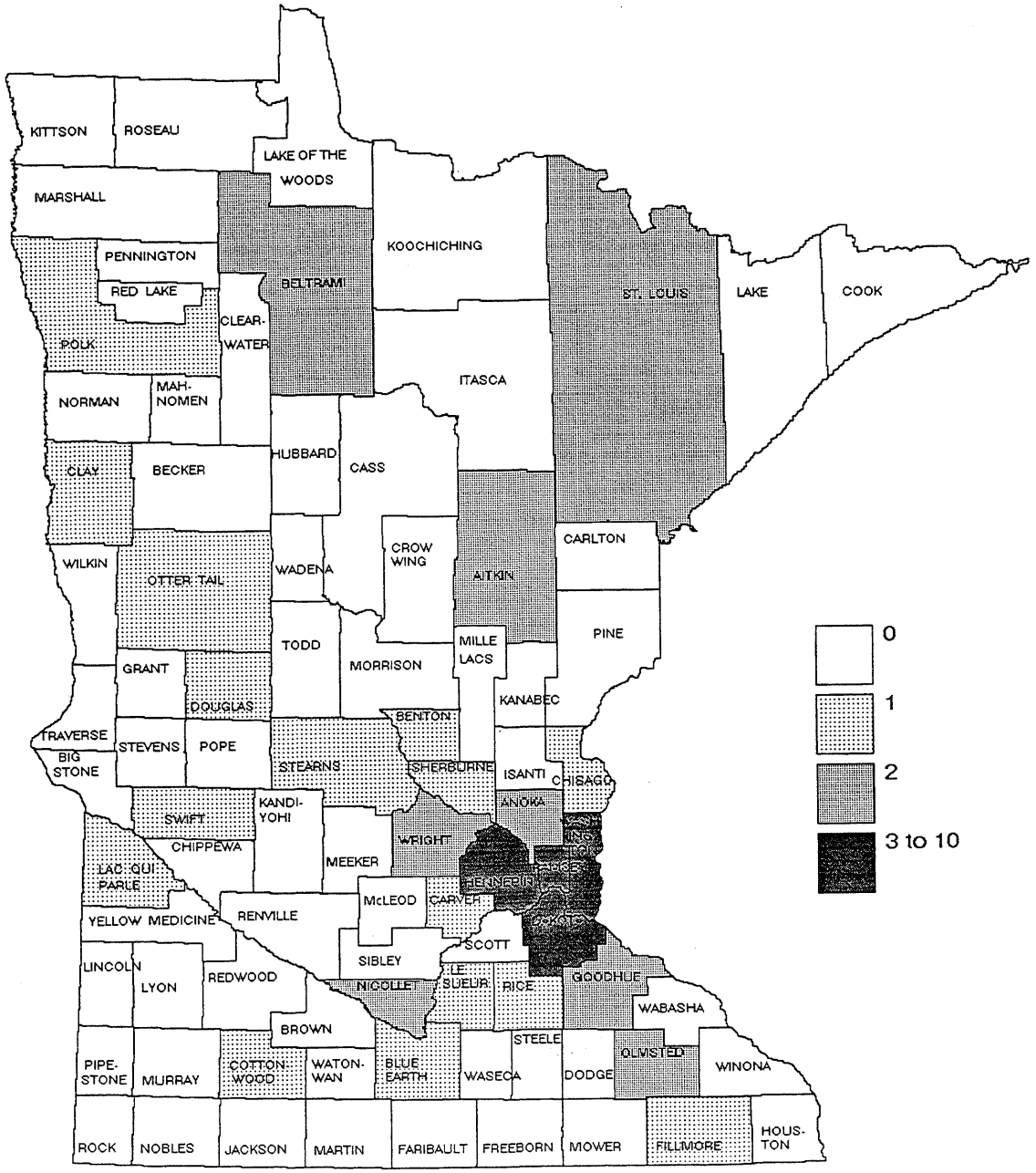


In Minnesota, native wildflower and grass seeds are purchased by users for different planting projects which may involve large or small volumes of planting acreage. Seed utilization includes the following five main categories with respective percentage volumes consumed: 1) residential and commercial landscaping — 47 percent; 2) parks and recreation projects — 13 percent; 3) roadside and highway construction — 11 percent; 4) land improvement and set-aside acres — 10 percent, and 5) seed production and miscellaneous uses such as re-sale — 19 percent.

B. GEOGRAPHIC AREAS OF SEED CONSUMPTION

An estimated two-thirds of native seed users are geographically concentrated in central Minnesota, especially around the seven-county metro area, while the rest spread across southern Minnesota (19 percent) and northwest and northeast Minnesota (15 percent). Many of these users, however, may have more than one planting sites located in other counties or regions, which are not shown on the user distribution map.

FIGURE-10 GEOGRAPHIC DISTRIBUTION OF NATIVE WILDFLOWER AND GRASS USERS



C. SEED SOURCE

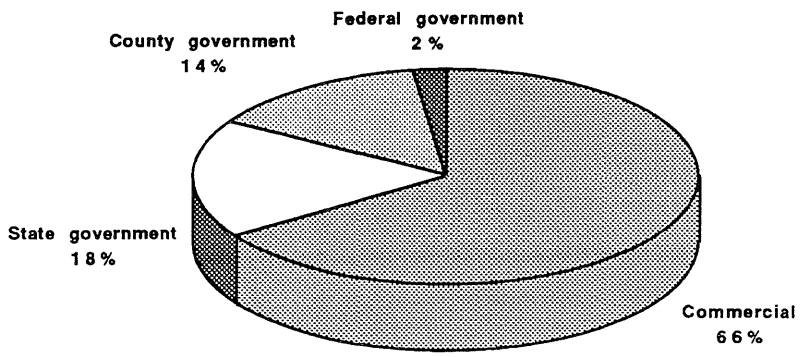
The survey reported that Minnesota consumers prefer to use 100 percent locally grown species. But due to various reasons such as seed availability and prices, seed users may also frequently purchase non-native species from other states. In the marketplace, Minnesota's growers supply over two-thirds of all wildflower seeds purchased, while the rest comes from non-Minnesota sources. However, local growers provide a larger share of native grass seeds in the market, ninety percent, compared to ten percent of non-Minnesota grass seeds.

Almost 80 percent of users purchase seeds from sources within a 100-mile radius; among them, half of the users buy seeds within a 50-mile radius. Only two percent go beyond a 200-mile radius for seed purchased.

Among non-Minnesota suppliers, Wisconsin ranks No. 1 on the list, with a 15 percent market share of non-Minnesota seeds, followed by, in descending order, North Dakota, 10 percent; Iowa, 8 percent; Colorado, 8 percent; South Dakota, 5 percent; and Nebraska, 5 percent. Other suppliers also include Idaho, Indiana, Kansas, Michigan, Missouri, New Hampshire, New Jersey, Pennsylvania, and Vermont.

FIGURE-11

Native Seed Consumers



D. USER INFORMATION

Among the user group, two-thirds represented the commercial sector which consists of wholesalers, retailers, service contractors and other businesses; one-third were government agencies including federal, state, and county offices.

1. COMMERCIAL WHOLESALE SECTOR:

As the most important segment of the current native seed market, this consumer group includes a large number of volume users such as general landscapers, nurseries and garden centers, and construction contractors, etc., who serve retail customers and other end-users through direct or service-related sales. They bring the highest sales volumes and have ready access to a growing clientele base. A typical wholesale customer is a business corporation with an interest in native prairie plants who also has the financial ability to pay premium prices for corporate office landscaping through a service contractor.

2. COMMERCIAL RETAIL AND MAIL ORDER SECTOR:

Demand for retail sales and mail order has been increasing in the last few years as more homeowners became interested in naturalistic landscaping and started growing wildflowers and native plants in home yards and gardens. This new consumption trend is a result of increased planting of wildflowers and grasses on public land and roadsides and the previous education and promotional efforts by public and private supporters of native prairie plants. Even though retail market and mail order only involve small volume sales, they help achieve the highest product value and profit margin for producers and marketers, and will continue to bring increased market opportunities for the native seed business.

Another popular form of retail is the on-farm sales which serve walk-in customers and farmers from neighboring communities. Most producers have on-farm sale outlets, enabling them to reduce overhead costs through direct marketing.

3. GOVERNMENT SECTOR:

Every year, the State of Minnesota purchases large quantities of native wildflower and grass seeds for highway construction projects, state parks and recreation area planting, wildlife habitat improvement, roadside planting, and other conservation management programs, including RIM (Re-invest in Minnesota). As a forefront promoter and user, the state started purchasing and using native seeds more than a decade ago to help improve the native vegetation and diversity of prairie flowers and grasses along highways and on other state lands. Even though the state purchase fluctuates each year because of budget changes, it has maintained an upward trend since the late 1980's.

Compared to common turf grass and non-native species, planting native forbs and grasses can reduce the amount of maintenance needed, because the native species are highly resistant to drought and better adapted to the soil, water, and natural climate of their particular region of origin. The ecological, economic and aesthetic benefits of native seeds justify the state's efforts and spending that helped bring the visibility and acceptance of Minnesota-origin prairie species, which in the long run will significantly reduce the state's spending in maintenance of roadside and other public utility projects.

Currently, the state also produces and harvests a portion of native seeds it needs for various planting projects as a solution to budget constraints and inadequate supplies. It is unclear, at this point in time, the long-term effect of government production on commercial native seed industry in Minnesota. This topic requires further study and analysis for an in-depth and accurate assessment.

Approximately 15 percent of Minnesota's eighty-seven counties are purchasing native wildflower and grass seeds for county highway construction, parks and other public land plantings. The number will increase in the next few years as more counties have expressed an interest in using native species or are making plans to do so but may be delayed due to various reasons such as limited funding and seed source.

The U.S. Fish & Wildlife Service of the U.S. Department of Interior is also a long-time user of native seeds. It produces and purchases native species for land improvement projects such as wildlife management and protection.

4. OUT-OF-STATE MARKET

Non-Minnesota buyers consist mainly of government users or installation contractors who bid on public planting projects. Among the neighboring mid-western states, government purchases usually hold a 70 percent or more market share, compared to Minnesota's 32 percent. In recent years, many of the mid-western states have increased government plantings, driving up market demand which led to more out-of-state purchases. Minnesota producers stand to gain from seed sales to these states in the next few years, or until seed production in those states catches up with the demand.

E. SPECIES IN DEMAND

Based on the information obtained from the consumer survey, a species list was compiled to include the current and potential native wildflowers and grasses demanded by Minnesota's market. Some of the high-volume and popular species are listed as follows (in descending order):

GRASSES:

Side-Oats Grama (Bouteloua curtipendula)
Indian Grass (Sorghastrum nutans)
Big Bluestem (Andropogon gerardi)
Little Bluestem (Andropogon scoparius)
Switch Grass (Panicum virgatum)
Blue Grama (Bouteloua gracilis)
Big Bluestem "Roundtree"
Green Needle Grass (Stipa viridula)
Canada Wild Rye (Elymus canadensis)
Western Wheat Grass (Agropyron smithii)

WILDFLOWERS:

Black-eyed Susan (Rudbeckia hirta)
Purple Prairie Clover (Petalostemum purpureum)
Purple Coneflower (Echinacea purpurea)
Wild Bergamot (Monarda fistulosa)
New England Aster (Aster novae-angliae)
Dotted Blazing Star (Liatris punctata)
Wild Ginger (Asarum canadense)
Butterfly Weed (Asclepias tuberosa)
Lead Plant (Amorpha canescens)
Blue Vervain (Verbena hastata)

"Appendix 3" provides a list of the common species currently purchased or requested by consumers in the market. However, it does not include all species in demand as many of the consumer survey respondents were unable to supply a complete species list due to quantity purchased and incomplete labeling information for seed mixes.

F. PACKAGING & MARKETING REQUIREMENTS

Consumers purchase native wildflower and grass seeds in different packaging forms and mixes. The survey results reported the following statistics:

Purchasing forms	*Wildflowers*	*Grasses*
Pure Seed by Pounds	23%	33%
Pure Seed by Ounces	16%	5%
Seed Mix by Pounds	55%	48%
Seed Mix by Ounces	30%	5%
Seedlings	18%	7%
Plants	9%	8%

Consumers also require specific processing standards for the seeds. The following information show different processing categories and the percentage of consumers requesting them:

Cleaned and Conditioned	47%
Tested	43%
Official Seed Certifying Agency Standards	61%

G. CONSUMER MARKET PROJECTIONS

The 1992 Consumer Survey showed that the survey group is made up of 82 percent current users and 18 percent potential users. From the consumers' point of view, the utilization volume of native seeds can be much higher if the market supply — quantity, species, and geno-types — can accommodate consumers needs and expectations. In other words, the market-oriented production and supply will help enhance the commercialization and marketing volume of native seeds. In recent years, consumer demand for native wildflowers has been growing at a higher rate than that of the native grasses. This trend will continue in the coming years as the commercial wholesale and retail market expands. The market projection

indicates the rate of growth for native grasses will be unlikely to match that of the 1980's because of the maturing CRP acres. The 1990's consumer market demands the diversity of available seed species, easily accessible seed sources, and more geno-types for various geographic locations and regions.

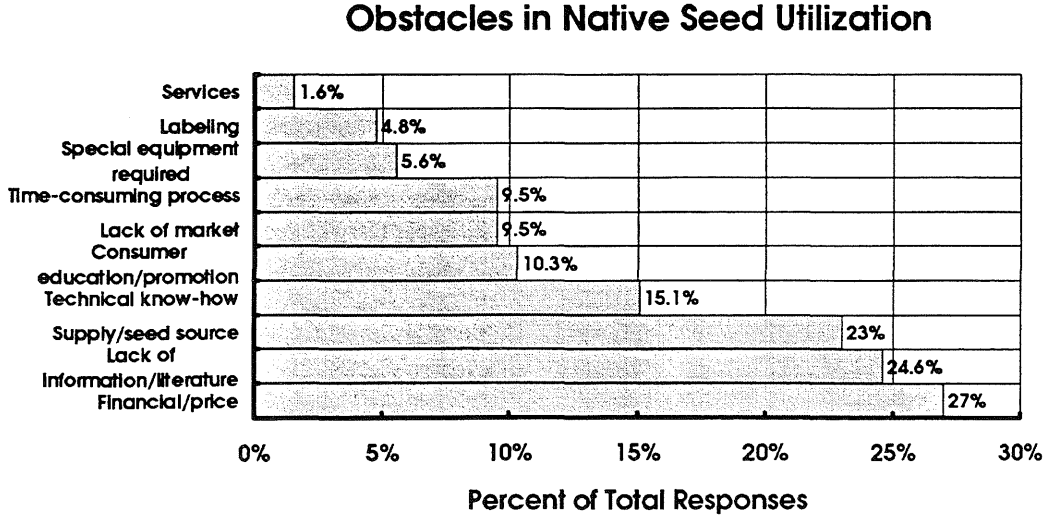
In regard to government purchases, Minnesota's highway right of ways and roadsides occupy approximately 260,000 acres of state land, and this figure triples if counties and townships are included. Each year, the Minnesota Department of Transportation seeds approximately 2,000 acres of land after highway construction, of which, about 500 acres are planted with native seed species. Although a portion of such seeds come from internal production, the commercially produced seeds will continue to be a main source of supply. Another state agency, the Minnesota Department of Natural Resources, also plans to expand the planting and use of native seeds for various resources management projects in the coming years. Government purchase and use will remain strong in the future, even though available budgets may limit the rate of increase.

H. LIMITING FACTORS TO NATIVE SEED UTILIZATION

The majority of consumer survey respondents provided positive feedbacks to the increased utilization of native species in the state. However, many of them also expressed concerns and dissatisfaction with the current situation in respect to the financial ability to purchase, seed availability and prices, general information and literature, technical assistance, consumer education, market promotion, and labeling.

Twenty-seven percent listed the lack of financial ability to purchase or high seed cost as one of the biggest obstacles facing the consumers. Some of consumers reported that because of the unavailable or limited funds, they had been unable to accomplish the purchase and planting as planned. Twenty-five percent expressed dissatisfaction with the insufficient information and literature on native wildflowers and grasses, as well as the technical references or resources. For the general public or interested consumers, there were no readily available information materials or brochures for

FIGURE-12



reading or learning purposes. Twenty-three percent of respondents identified the inadequate seed supply, limited seed sources and species (such as eco-types) as another obstacle which prevented consumers from increased seed use. Many consumers are frustrated at finding suppliers and suitable eco-types or species. Fifteen percent also commented on the lack of technical knowledge, skills or available assistance on seeding, planting, management and maintenance of native seeds. There are other prohibiting factors, such as the lack of consumer education and product promotion — cited by 10 percent of respondents, under-developed markets and lack of consumer interest — 10 percent, and the time-consuming and difficult process to establish planted fields — 10 percent.

IV. Conclusion

Minnesota has been a leader in native seed production and utilization in the mid-west region. The past decade witnessed the development of Minnesota's native wildflower and grass seed industry, which has grown from a few hundred pounds annual output to the present production scale of 127,000 pounds. The next few years will bring great challenges as the industry moves toward commercialization where market forces will become increasingly important. Market competition, demand-driven marketing strategies, higher quality requirements, and price competitiveness will affect the production and business decisions for all producers.

However, the market potentials for Minnesota's native seed industry can not be underestimated. Preliminary market research showed that the majority of the general public have very limited information or knowledge about Minnesota's native grasses and wildflowers and their uses or benefits. The 1992 Consumer Survey targeted a selected group of consumers who represented the new market niche, but the scale of the prospective markets exceed the current estimate. Presently, much of the market potentials for native plant species still remain untapped because of the lack of public recognition and awareness. Research findings revealed that a well-informed consumer — a retailer, wholesaler, or individual — tends to take a more positive and supportive position in native seed utilization and will most likely become a user. Continued public education and market promotion are essential in reaching a broader spectrum of the general public and potential users.

The commercial market will continue to expand if and when heightened public awareness and interest becomes the driving force in the market development.

There are other challenges facing the Minnesota's native seed industry, such as the competition of imported or non-Minnesota origin wildflowers and grasses, the confusion between "native" and "wild" seed species, and growers' concerns over possible excess-supply. These issues need to be addressed before the market potentials can be fully explored. However, the development of Minnesota's native seed production and utilization holds great promise for a new and viable agricultural industry.

APPENDIX 1
NATIVE WILDFLOWER/GRASS SEED PRODUCER QUESTIONNAIRE

I. PRODUCER INFORMATION

Name_____

Business/Farm Name_____

Address_____

City/State/Zip_____

Phone Number_____ Fax Number_____

1. I am presently producing native wildflower crops.

   - ☐ Yes
   - ☐ No

2. I am presently producing native grass crops.

   - ☐ Yes
   - ☐ No

3. In which counties and state(s) are your native wildflower/grass seed production located?

   - ☐ _____ (county) and _____ (state).
   - ☐ _____ (county) and _____ (state).
   - ☐ _____ (county) and _____ (state).
   - ☐ _____ (county) and _____ (state).
   - ☐ _____ (county) and _____ (state).
   - ☐ I do not currently have native wildflower/grass seed production.

4. During 1991, how much time did you devote to native wildflower/grass seed production?

   - ☐ Full-time
   - ☐ Part-time
   - ☐ Hobby farm
   - ☐ None

● **IF YOU CURRENTLY HAVE NATIVE WILDFLOWER/GRASS SEED CROPS IN PRODUCTION PLEASE SKIP TO QUESTION NUMBER 6 BELOW.**

5. If you do not currently have a native wildflower/grass seed crop, how many years until your crop will be in production?

_____ years

● **SINCE YOU DO NOT CURRENTLY HAVE A CROP, PLEASE SKIP TO SECTION IV ON PAGE 6.**

II. PRODUCTION INFORMATION

6. How many years has your native wildflower crop been in production?

_____ years

7. How many years has your native grass crop been in production?

_____ years

8. In 1991, how many acres did you have in wildflower production?

_____ acres in cultivation
_____ acres in wild

9. In 1991, how many acres did you have in native grass production?

_____ acres in cultivation
_____ acres in wild

10. In 1991, what was your total wildflower production in pounds?

_____ pounds from cultivation
_____ pounds from wild

11. In 1991, what was your total native grass production in pounds?

_____ pounds from cultivation
_____ pounds from wild

12. From which of the following sources do you receive your native wildflower/grass seed? (Please check all that apply.)

- ☐ I collect the seed from wild or other natural sites.
- ☐ I collect the seed from my own crop.
- ☐ I purchase the seed from other native wildflower/grass seed producers.
- ☐ Other (please identify)_____

13. Please identify your 1991 production by species and variety, including both the actual yield, amount available for sale, and the county of seed origin. Attach additional sheets if necessary. (If you publish a catalog, please send us a copy.)

	WILDFLOWER/GRASS SEED SPECIES AND VARIETY	ACTUAL YIELD (POUNDS)	SALABLE QUANTITY (POUNDS)	COUNTY OF ORIGIN
1)				
2)				
3)				
4)				
5)				
6)				
7)				
8)				
9)				
10)				
11)				
12)				
13)				
14)				

14. In 1991 what were your ten best-selling (in pounds) native wildflower/grass seed species and varieties and how long have those species been in production and available for sale?

	Native Wildflower/Grass Seed Species and Variety	Pounds Sold	Years in Production	Years for Sale
1)				
2)				
3)				
4)				
5)				
6)				
7)				
8)				
9)				
10)				

III. Marketing/Processing Information

15. How is your native wildflower/grass seed processed or conditioned prior to selling? (Please check all that apply.)

- ☐ Cleaned
- ☐ Graded
- ☐ Packaged
- ☐ Mixed
- ☐ Certified or Tested
- ☐ Other (please identify)_____
- ☐ I do not process or condition the seed prior to selling.

16. Is the seed processed or conditioned:

- ☐ In-house (by you or an employee)
- ☐ By another processor or conditioner.

17. Please identify the types of products you sell: (Check all that apply)

- ☐ Pure Seed by Pounds
- ☐ Pure Seed by Ounces
- ☐ Seed Mix by Pounds
- ☐ Seed Mix by Ounces
- ☐ Seedlings
- ☐ Plants
- ☐ Other (please identify)_____

18. Do you sell all your native wildflower/grass seed crops in a typical year?

- ☐ Yes
- ☐ No. (Please estimate the percentage of your crop that is typically carried over. _____%)

19. What percentage of your product is sold to: (Total should add to 100%)

RETAIL

_____ On-Farm Sales Location
_____ Off-Farm Sales Location (farmers' markets, roadside stands, etc.)
_____ Mail Order
_____ Other (please identify)_____

WHOLESALE

_____ Lanscaping Firms
_____ Retail Garden/Nursery Centers
_____ Other Businesses
_____ Other (please identify)_____

GOVERNMENT

_____ Federal Agencies
_____ State Agencies
_____ Local Agencies

IN-HOUSE

_____ Used In-House for Own Seed Source

100% **TOTAL**

20. What percentage of your product is sold in the following states? (Total should add to 100%)

_____ Minnesota
_____ Iowa
_____ North Dakota
_____ South Dakota
_____ Wisconsin
_____ Other U.S. States
_____ Canada
_____ Other (please identify)_____
100% **TOTAL**

21. What percentage of your product is sold within the following areas of production? (Total should add to 100%)

_____ 0-50 Mile Radius
_____ 51-100 Mile Radius
_____ 101-200 Mile Radius
_____ Over 200 Mile Radius
100% **TOTAL**

IV. Future Projections/Assessments

22. Please identify your short term and long term production plans for native wildflower/grass seed by species and variety. (Please add additional pages if necessary.)

		1992 Acreage		1995 Acreage		1997 Acreage	
	Native Wildflower/Grass Seed Species and Variety	Seed	Seedlings	Seed	Seedlings	Seed	Seedlings
1)							
2)							
3)							
4)							
5)							
6)							
7)							
8)							
9)							
10)							
11)							
12)							
13)							
14)							
15)							

23. Please identify and discuss what you believe to be obstacles in the expansion of your native wildflower/grass seed production. Topics may include financial, technical, production management, seed source, availability of markets, and marketing issues among others. (Feel free to add pages or use additional space on the back of this questionnaire.)

*Obstacle #1 - Topic (please identify)*_____

*Obstacle #2 - Topic (please identify)*_____

*Obstacle #3 - Topic (please identify)*_____

*Obstacle #4 - Topic (please identify)*_____

*Obstacle #5 - Topic (please identify)*_____

24. Please rank the importance of your answers in question number 23, with "1" being the biggest obstacle to expansion, "2" being the second biggest obstacle, and so on.

_____ Obstacle #1 (see question 23)
_____ Obstacle #2 (see question 23)
_____ Obstacle #3 (see question 23)
_____ Obstacle #4 (see question 23)
_____ Obstacle #5 (see question 23)

V. OTHER

25. Additional comments and remarks:

26. Please identify the names and addresses of other native wildflower/grass seed producers in the space provided below.

Name_____

Address_____

City/State/Zip_____

Phone_____

Name_____

Address_____

City/State/Zip_____

Phone_____

Name_____

Address_____

City/State/Zip_____

Phone_____

Name_____

Address_____

City/State/Zip_____

Phone_____

Name_____

Address_____

City/State/Zip_____

Phone_____

27. The next step in the research process will be identifying and surveying native wildflower/grass seed consumers. Would you please help us by identifying the names and addresses of any consumers of whom you are aware in the space provided below?

Name_____

Address_____

City/State/Zip_____

Phone_____

Name_____

Address_____

City/State/Zip_____

Phone_____

Name_____

Address_____

City/State/Zip_____

Phone_____

Name_____

Address_____

City/State/Zip_____

Phone_____

Name_____

Address_____

City/State/Zip_____

Phone_____

APPENDIX 2
NATIVE WILDFLOWER/GRASS SEED CONSUMER SURVEY

FOR THE PURPOSE OF THIS SURVEY, NATIVE WILDFLOWERS AND GRASSES ARE DEFINED AS AN UNALTERED OR NATURALLY-OCURRING HERBACEOUS PLANT SPECIES INDIGENOUS TO MINNESOTA.

I. GENERAL INFORMATION

Business Name _____

Contact Person _____

Street Address _____

City/State/Zip _____

Telephone Number _____ Fax Number _____

1. During 1991, did you purchase and/or use native wildflower seeds?

   ☐ Yes
   ☐ No

2. During 1991, did you purchase and/or use native grass seeds?

   ☐ Yes
   ☐ No

IF YOU CHECKED "NO" TO BOTH QUESTIONS 1 AND 2, PLEASE SKIP TO QUESTION NUMBER 12 ON PAGE 5.

II. USAGE INFORMATION

3. For how many years have you been purchasing and/or using native wildflower seeds?

   ☐ _____ Years
   ☐ I have not purchased or used native wildflower seeds.

4. For how many years have you been purchasing and/or using native grass seeds?

   ☐ _____ Years
   ☐ I have not purchased or used native grass seeds.

5. Please complete the following table. For each species of native wildflower or grass seed provide the quantity purchased in pounds, the quantity used in pounds, and the geographic region in which the seed was used or planted (see enclosed map for regions).

	1989		1990		1991		
SPECIES	PURCHASED	USED	PURCHASED	USED	PURCHASED	USED	REGION

6. For which of the following uses have you been purchasing native wildflower or grass seeds? (Please check all that apply.)

- ☐ Highway Projects
- ☐ Residential Landscaping
- ☐ Commerical Landscaping
- ☐ Park and Recreation Areas
- ☐ Land Improvement
- ☐ Set-Aside Acres
- ☐ Native Wildflower/Grass Seed Production
- ☐ Other (please identify)_____

7. What is the distance between your place of business and your native wildflower or grass seed supplier? (Please check all that apply.)

MINNESOTA SUPPLIERS

- ☐ 0-50 Mile Radius
- ☐ 51-100 Mile Radius
- ☐ 101-200 Mile Radius
- ☐ Over 200 Mile Radius

NON-MINNESOTA SUPPLIERS

- ☐ North Dakota
- ☐ South Dakota
- ☐ Wisconsin
- ☐ Iowa
- ☐ Other U.S. States (please identify)_____
- ☐ Canada
- ☐ Other Countries (please identify)_____

8. What percentage of the wildflowers or grass seed that you purchase is from suppliers within Minnesota and what percentage is from suppliers outside Minnesota?

WILDFLOWER SEEDS		**GRASS SEEDS**	
%	Minnesota Suppliers	%	Minnesota Suppliers
____%	Non-Minnesota Suppliers	____%	Non-Minnesota Suppliers
100 %	**TOTAL**	100 %	**TOTAL**

9. What type and in what form do you purchase native wildflower or grass seed products? (Please check all that apply.)

WILDFLOWERS

- ☐ Pure Seed by Pounds
- ☐ Pure Seed by Ounces
- ☐ Seed Mix by Pounds
- ☐ Seed Mix by Ounces
- ☐ Seedlings
- ☐ Plants
- ☐ Other (identify)_____

GRASSES

- ☐ Pure Seed by Pounds
- ☐ Pure Seed by Ounces
- ☐ Seed Mix by Pounds
- ☐ Seed Mix by Ounces
- ☐ Seedlings
- ☐ Plants
- ☐ Other (identify)_____

10. Do you require your native wildflower or grass seed to be (please check all that apply):

- ☐ Cleaned & Conditioned
- ☐ Tested
- ☐ Certified According to an Official Seed Certifying Agency Standards
- ☐ Treated with a Pesticide

11. Please supply the name, address and phone number of your major native wildflower or grass seed suppliers. (Attach additional sheets if necessary.)

Name_____

Contact_____

Address _____

City/State/Zip _____

Phone_____

Name_____

Contact_____

Address _____

City/State/Zip _____

Phone_____

III. Future Usage Projections

12. Please identify your short term and long term usage plans for wildflower and grass seed. For each species estimate the number of pounds you plan to use (or the number of seedlings) and the region of origin you require (see enclosed map for regions). If no plans, go to question 13 on page 6.

	1992 Projections		1995 Projections		1997 Projections		
Species	Seed	Seedlings	Seed	Seedlings	Seed	Seedlings	Region of Origin

13. Please identify which of the following categories classifies you the best:

GOVERNMENT

- ☐ Federal Agency
- ☐ State Agency
- ☐ Local Agency

WHOLESALE

- ☐ Landscaping Firm
- ☐ Seed Company
- ☐ Other (please identify)_____

RETAIL

- ☐ On-Farm Sales Location
- ☐ Off-Farm Sales Location (farmers' market, roadside stand, etc.)
- ☐ Retail Garden/Nursery Center
- ☐ Mail Order
- ☐ Other (please identify)_____

OTHER

- ☐ Farmer
- ☐ Homeowner
- ☐ Other (please identify)_____

14. Please identify and discuss what you believe to be obstacles in purchasing and using wildflower and grass seed. Topics may include financial, technical, seed source and geographic production of seed among others. (Feel free to add pages or use additional space on the back of this questionnaire.)

Obstacle #1 - Topic (please identify) _____

Obstacle #2 - Topic (please identify) _____

Obstacle #3 - Topic (please identify) _____

Obstacle #4 - Topic (please identify) _____

15. Please rank the importance of your answers in question number 14, with "1" being the biggest obstacle to purchasing/using wildflower and grass seed, "2" being the second biggest obstacle, and so on.

_____ Obstacle #1 (see question 14)
_____ Obstacle #2 (see question 14)
_____ Obstacle #3 (see question 14)
_____ Obstacle #4 (see question 14)

16. Please use the following space to make a "Wish List" for wildflower and grass seeds. What are your special requirements for seeds? What services would you like to receive from suppliers? What can be improved?

17. Additional comments and remarks:

Appendix 3
Native Wildflower/Grass User Species

Wildflowers

w	Agastache nepetoides
w	Agastache scrophularia
w	Agoseris cuspidata
w	Allium canadense
w	Allium cernuum
w	Allium stellatum
w	Allium tricoccum
w	Amorpha canescens
w	Amorpha fruticosa
w	Amorpha nana
w	Anemone canadensis
w	Anemone cylindrica
w	Anemone patens wolfgangiana
w	Angelica atropurpurea
w	Antennaria neglecta
w	Antennaria plantaginifolia
w	Aquilegia canadensis
w	Aralia racemosa
w	Arenaria stricta
w	Artemisia ludoviciana
w	Asarum canadense
w	Asclepias incarnata
w	Asclepias tuberosa
w	Asclepias verticillata
w	Aster azureus
w	Aster ericoides
w	Aster laevis
w	Aster linariifolius
w	Aster novae-angliae
w	Aster oblongifolius
w	Aster ptarmicoides
w	Aster puniceus
w	Aster sericeus
w	Aster simplex
w	Aster umbellatus
w	Astragalus canadensis
w	Baptisia australis
w	Baptisia leucantha
w	Baptisia leucophaea
w	Bidens cernua
w	Blephilia ciliata
w	Blephilia hirsuta
w	Cacalia atriplicifolia
w	Cacalia muhlenbergii
w	Cacalia suaveolens
w	Callirhoe traingulata
w	Caltha palustris
w	Camassia scilloides
w	Campanula americana
w	Campanula rotundifolia
w	Cassia fasciculata
w	Cassia hebecarpa
w	Cassia marilandica
w	Ceanothus americanus
w	Ceanothus ovatus
w	Celastrus scandens
w	Cephalanthus occidentalis
w	Chelone glabra
w	Chrysopsis camporum
w	Cicuta maculata
w	Clematis virginiana
w	Coreopsis lanceolata
w	Coreopsis palmata
w	Coreopsis tripteris
w	Crotalaria sagittalis
w	Cryptotaenia canadensis
w	Delphinium virescens
w	Desmanthus illinoensis
w	Desmodium canadense
w	Desmodium glutinasum
w	Desmodium illinoense
w	Desmodium sessilifolium
w	Dodecatheon amethystinum
w	Dodecatheon meadia
w	Echinacea angustifolia
w	Echinacea pallida
w	Echinacea purpurea
w	Epilobium angustifolium
w	Eryngium yuccifolium
w	Eupatorium altissimum
w	Eupatorium maculatum
w	Eupatorium perfoliatum
w	Eupatorium purpureum
w	Eupatorium rugosum
w	Euphorbia corollata
w	Filipendula rubra
w	Fragaria virginiana
w	Froehlichia floridana
w	Galium boreale
w	Gaura biennis
w	Gentiana andrewsii
w	Gentiana crinita
w	Gentiana flavida
w	Gentiana puberula
w	Gentiana quinquefolia
w	Geranium maculatum
w	Gerardia tenuifolia
w	Geum aleppicum

w	Geum triflorum
w	Glycyrrhiza lepidota
w	Gnaphalium obtusifolium
w	Helenium autumnale
w	Helianthus grosseserratus
w	Helianthus laetiflorus
w	Helianthus maximilliani
w	Helianthus mollis
w	Helianthus occidentalis
w	Heliopsis helianthoides
w	Heracleum maximum
w	Heuchera richardsonii
w	Hieracium canadense
w	Hieracium longipilum
w	Hydrophyllum virginianum
w	Hypericum pyramidatum
w	Hypoxis hirsuta
w	Iris prismatica
w	Iris shrevei
w	Iris versicolor
w	Jeffersonia diphylla
w	Kuhnia eupatorioides
w	Lespedeza capitata
w	Liatris aspera
w	Liatris cylindracea
w	Liatris ligulistylis
w	Liatris punctata
w	Liatris pycnostachya
w	Liatris spicata
w	Lilium michiganese
w	Lilium phildelphicum
w	Linum sulcatum
w	Lobelia cardinalis
w	Lobelia inflata
w	Lobelia siphilitica
w	Lobelia siphilitica alba
w	Lobelia spicata
w	Lupinus perennis
w	Lysimachia quadriflora
w	Lythrum alatum
w	Mimulus ringens
w	Monarda fistulosa
w	Monarda punctata
w	Napaea dioica
w	Nicotiana rustica
w	Oenothera biennis
w	Oenothera rhombipetala
w	Opuntia humifusa
w	Osmorhiza claytoni
w	Oxypolis rigidior
w	Parthenium integrifolium
w	Pedicularis canadensis
w	Pedicularis lanceolata
w	Penstemon digitalis
w	Penstemon gracilis
w	Penstemon grandiflorus
w	Penstemon pallidus
w	Petalostemum candidum
w	Petalostemum foliosum
w	Petalostemum purpureum
w	Petalostemum villosum
w	Phlox divaricata
w	Phlox glaberrima interior
w	Phlox pilosa
w	Physocarpus opulifolus
w	Physotegia virginiana
w	Plantago purshii
w	Polemonium reptans
w	Polygala polygama
w	Polygonatum canaliculatum
w	Polytaenia nuttallii
w	Potentilla arguta
w	Prenanthes alba
w	Prenanthes racemosa
w	Psoralea tenuiflora
w	Pycnanthemum tenuifolium
w	Pycnanthemum virginianum
w	Ranunculus rhomboideus
w	Ranunculus pensylvanic
w	Ratibida columnifera
w	Ratibida pinnata
w	Rosa arkansana
w	Rosa setigera
w	Rudbeckia hirta
w	Rudbeckia laciniata
w	Rudbeckia subtomentosa
w	Rudbeckia triloba
w	Ruellia humilis
w	Sanguisorba canadensis
w	Saxifraga pensylvanica
w	Silene regia
w	Silphium integrifolium
w	Silphium laciniatum
w	Silphium perfoliatum
w	Silphium terebinthinaceum
w	Sisyrinchium campestre
w	Sisyrinchium campestre alba
w	Smilacina racemosa
w	Smilacina stellata
w	Solidago graminifolia
w	Solidago nemoralis
w	Solidago riddellii
w	Solidago rigida
w	Solidago speciosa
w	Solidago ulmifolia
w	Taenidia integerrina
w	Tephrosia virginiana
w	Teucrium canadense

w Thalictrum dasycarpum
w Thalictrum dioicum
w Thaspium trifoliatum
w Tradescantia bracteata
w Tradescantia occidentalis
w Tradescantia ohiensis
w Valeriana edulis
w Verbena hastata
w Verbena stricta
w Vernonia fasciculata
w Vernonia missurica
w Veronicastrum virginicum
w Viola conspersa
w Viola eriocarpa
w Viola palmata
w Viola papilionacea
w Viola pedata
w Viola pedatifida
w Viola sagittata
w Wulfenia bullii
w Zizia aptera
w Zizia aurea
w Achillea millefolium
w Agastache foeniculum
w Aster sagittifolius
w Astagalus crassicarpus
w Cirsium muticum
w Epilobium coloratum
w Gerardia paupercula
w Helianthemum bicknelli
w Helianthus divaricatus
w Helianthus giganteus
w Helianthus tuberosus
w Heterotheca villosa
w Houstonia longifolia
w Hypericum majus
w Lilium superbum
w Lysimachia ciliata
w Oenothera surrulata
w Potentilla fruticosa
w Sagittaria latifolia
w Senecio aureus
w Senecio plattensis
w Senecio paupercaulis
w Solidago missouriensis
w Stachys palustris
w (Oxeye)
w (Marsh Milkweed)
w (Blazing Star)
w (Cream False Indigo)
w (Tall Blazing Star)
w Castilleja sessiliflor
w Polygala senega
w (Azure Aster)
w (Rough Blazing Star)
w (Giant Hyssop)
w (Stiff Tic-Seed)
w (Newport Bluegrass)
w (Park Bluegrass)
w (Perennial Rye)
w (Creep Red Fescue)_
w (Olds Midwest Wildflower Mix)
w (Short Dry Wildflower Mix #1)
w (NK North American Wildflowers)
w (Mesic Mix)
w (Mesic Wildflower Mix)
w (Rosa Species)
w Osmundo cinnamomea
w Adiantum pedatum
w Athyriam felixfemina
w Merlinsia verginica
w (Blanket Flower)
w (Upright Prairie Coneflower)
w (Greyhead Prairie Coneflower)
w (Danes Rocket)
w (Rough Oxeye)
w (Thickspike Gayfeather)
w (Spiked Gayfeather)
w (White Yarrow)
w (Pitcher Sage)
w (Lance Leaf Coreopsis)
w (Mexican Red Hat)
w (Common Vetch)
w (Country Wildflower)
w (Butterfly)
w (Cutting Garden)
w (Floral Ground Cover)
w (Native Harvest Mix)
w (Mixed Native Forbs)
w (Showy Penstemon)
w (Stiff Sunflower)
w (Columnar Coneflower)
w (Prairie Bush Clover)
w (Narrow-Leaved Milkweed)
w Generic Wildflower Mix

GRASSES

g Agropyron smithii
g Agropyron trachycaulum
g Andropogon gerardi
g Andropogon hallii
g Andropogon scoparius
g Bouteloua curtipendula
g Bouteloua gracilis

g Bouteloua hirsuta
g Bromus kalmii
g Bromus purgans
g Buchloe dactyloides
g Calamagrostis candensis
g Carex alopecoidea
g Carex annectens xanthocarpa
g Carex hysticina
g Carex pensylvanica
g Carex scoparia
g Carex sprengelii
g Carex stipata
g Carex vulpinoidea
g Elymus canadensis
g Elymus virginicus
g Hierchloe odorata
g Hystrix patula
g Juncus tenuis
g Koeleria cristata
g Panicum virgatum
g Paspalum ciliatifolium
g Scirpus atrovirens
g Scirpus validus
g Sorghastrum nutans
g Spartina pectinata
g Sporobolus asper
g Sporobolus heterolepis
g Stipa spartea
g Stipa viridula
g Bromus ciliatus
g Calamovilfa longifolia
g Juncus greenei
g Muhlenbergia cuspidata
g Muhlenbergia glomerata
g Phragmites communis
g Typha latifolia
g (Big bluestem roundtree)
g (Big bluestem bonilla)
g (Native tall grass prairie seed)
g (Tall Grass Mix)
g (Blue Grass Mix)
g (Mn/DOT 150)
g (Mn/DOT 300)
g (Short Dry Mix)
g (Mesic Grass Mix)
g (Wetland Prairie Mix)
g (Mn/DOT 500)
g (Local Mixed Prairie)
g (Prairie Dropseed)
g Generic Grass Seed Mix

APPENDIX 4
NATIVE WILDFLOWER/GRASSES
BY ID CODE

60000001	Agastache Nepetoides	Yellow Giant Hyssop
60000002	Agastache Scrophulariaefolia	Purple Giant Hyssop
60000003	Agoseris Cuspidata	Prairie Dandelion
60000004	Allium Canadense	Wild Garlic
60000005	Allium Cernuum	Nodding Onion
60000006	Allium Stellatum	Prairie Onion
60000007	Allium Tricoccum	Wild Leek
60000008	Amorpha Canescens	Lead Plant
60000009	Amorpha Fruticosa	False Indigo
60000010	Amorpha Nana	Fragrant False Indigo
60000011	Anemone Canadensis	Canada Anemone
60000012	Anemone Cylindrica	Thimble Weed
60000013	Anemone Patens Wolfgangiana	Pasque Flower
60000014	Angelica Atropurpurea	Angelica
60000015	Antennaria Neglecta	Cat's Paw
60000016	Antennaria Plantaginifolia	Pussytoes
60000017	Aquilegia Canadensis	Columbine
60000018	Aralia Racemosa	Spikenard
60000019	Arenaria Stricta	Stiff Sandwort
60000020	Artemisia Ludoviciana	Prairie Sage
60000021	Asarum Canadense	Wild Ginger
60000022	Asclepias Incarnata	Swamp Milkweed
60000023	Asclepias Tuberosa	Butterfly Weed
60000024	Asclepias Verticillata	Whorled Milkweed
60000025	Aster Azureus	Sky Blue Aster
60000026	Aster Ericoides	Heath Aster
60000027	Aster Laevis	Smooth Blue Aster
60000028	Aster Linariifolius	Stiff Aster
60000029	Aster Novae-Angliae	New England Aster
60000030	Aster Oblongifolius	Aromatic Aster
60000031	Aster Ptarmicoides	Upland White Aster
60000032	Aster Puniceus	Swamp Aster
60000033	Aster Sericeus	Silky Aster
60000034	Aster Simplex	Panicled Aster
60000035	Aster Umbellatus	Flat-Topped Aster
60000036	Astragalus Canadensis	Candian Milk Vetch
60000037	Baptisia Australis	Blue Wild Indigo
60000038	Baptisia Leucantha	White Wild Indigo
60000039	Baptisia Leucophaea	Cream Wild Indigo
60000040	Bidens Cernua	Nodding Bur Marigold
60000041	Blephilia Ciliata	Downy Wood Mint
60000042	Blephilia Hirsuta	Hairy Wood Mint
60000043	Cacalia Atriplicifolia	Pale Indian Plantain
60000044	Cacalia Muhlenbergii	Great Indian Plantain
60000045	Cacalia Suaveolens	Sweet Indian Plantain
60000046	Callirhoe Traingulata	Clustered Poppy Mallow
60000047	Caltha Palustris	Marsh Marigold
60000048	Camassia Scilloides	Wild Hyacinth

60000049	Campanula Americana	Tall Bellflower
60000050	Campanula Rotundifolia	Harebell
60000051	Cassia Fasciculata	Partridge Pea
60000052	Cassia Hebecarpa	Wild Senna
60000053	Cassia Marilandica	Maryland Senna
60000054	Ceanothus Americanus	New Jersey Tea
60000055	Ceanothus Ovatus	Red Root
60000056	Celastrus Scandens	Bittersweet
60000057	Cephalanthus Occidentalis	Buttonbush
60000058	Chelone Glabra	Turtlehead
60000059	Chrysopsis Camporum	Golden Aster
60000060	Cicuta Maculata	Water Hemlock
60000061	Clematis Virginiana	Virgin's Bower
60000062	Coreopsis Lanceolata	Sand Coreopsis
60000063	Coreopsis Palmata	Prairie Coreopsis
60000064	Coreopsis Tripteris	Tall Coreopsis
60000065	Crotalaria Sagittalis	Rattlebox
60000066	Cryptotaenia Canadensis	Honewort
60000067	Delphinium Virescens	Prairie Larkspur
60000068	Desmanthus Illinoensis	Illinois Bundle Flower
60000069	Desmodium Canadense	Showy Tick Trefoil
60000070	Desmodium Glutinasum	Pointed-Leaf Tick Trefoil
60000071	Desmodium Illinoense	Illinois Tick Trefoil
60000072	Desmodium Sessilifolium	Sessile Tick Trefoil
60000073	Dodecatheon Amethystinum	Amethyst Shooting Star
60000074	Dodecatheon Meadia	Midland Shooting Star
60000075	Echinacea Angustifolia	Narrow-Purple Coneflower
60000076	Echinacea Pallida	Pale Purple Coneflower
60000077	Echinacea Purpurea	Purple Coneflower
60000078	Epilobium Angustifolium	Fireweed
60000079	Eryngium Yuccifolium	Rattlesnake Master
60000080	Eupatorium Altissimum	Tall Boneset
60000081	Eupatorium Maculatum	Joe Pye Weed
60000082	Eupatorium Perfoliatum	Boneset
60000083	Eupatorium Purpureum	Sweet Joe Pye Weed
60000084	Eupatorium Rugosum	White Snakeroot
60000085	Euphorbia Corollata	Flowering Spurge
60000086	Filipendula Rubra	Queen Of The Prairie
60000087	Fragaria Virginiana	Wild Strawberry
60000088	Froelichia Floridana	Cottonweed
60000089	Galium Boreale	Northern Bedstraw
60000090	Gaura Biennis	Gaura
60000091	Gentiana Andrewsii	Bottle Gentian
60000092	Gentiana Crinita	Fringed Gentian
60000093	Gentiana Flavida	Cream Gentian
60000094	Gentiana Puberula	Prairie Gentian
60000095	Gentiana Quinquefolia	Stiff Gentian
60000096	Geranium Maculatum	Wild Geranium
60000097	Gerardia Tenuifolia	Slender Gerardia
60000098	Geum Aleppicum	Yellow Avens
60000099	Geum Triflorum	Prairie Smoke
60000100	Glycyrrhiza Lepidota	Wild Licorice
60000101	Gnaphalium Obtusifolium	Sweet Everlasting
60000102	Helenium Autumnale	Sneezeweed

60000103	Helianthus Grosseserratus	Saw-Tooth Sunflower
60000104	Helianthus Laetiflorus	Show Sunflower
60000105	Helianthus Maximilliani	Maximillian Sunflower
60000106	Helianthus Mollis	Downy Sunflower
60000107	Helianthus Occidentalis	Western Sunflower
60000108	Heliopsis Helianthoides	Early Sunflower
60000109	Heracleum Maximum	Cow Parsnip
60000110	Heuchera Richardsonii	Prairie Alumroot
60000111	Hieracium Canadense	Canada Hawkweed
60000112	Hieracium Longipilum	Hairy Hawkweed
60000113	Hydrophyllum Virginianum	Virginia Waterleaf
60000114	Hypericum Pyramidatum	Great St. John's Wort
60000115	Hypoxis Hirsuta	Yellow Star Grass
60000116	Iris Prismatica	Slender Blue Flag Iris
60000117	Iris Virginica Shrevei	Blue Flag Iris
60000118	Iris Versicolor	Wild Iris
60000119	Jeffersonia Diphylla	Twinleaf
60000120	Kuhnia Eupatorioides	False Boneset
60000121	Lespedeza Capitata	Round-Headed Bush Clover
60000122	Liatris Aspera	Button Blazing Star
60000123	Liatris Cylindracea	Dwarf Blazing Star
60000124	Liatris Ligulistylis	Meadow Blazing Star
60000125	Liatris Punctata	Dotted Blazing Star
60000126	Liatris Pycnostachya	Prairie Blazing Star
60000127	Liatris Spicata	March Blazing Star
60000128	Lilium Michiganese	Turk's Cap Lily
60000129	Lilium Phildelphicum	Wood Lily
60000130	Linum Sulcatum	Grooved Yellow Flax
60000131	Lobelia Cardinalis	Cardinal Flower
60000132	Lobelia Inflata	Indian Tobacco
60000133	Lobelia Siphilitica	Great Blue Lobelia
60000134	Lobelia Siphilitica Alba	White Great Blue Lobelia
60000135	Lobelia Spicata	Pale Spiked Lobelia
60000136	Lupinus Perennis	Wild Lupine
60000137	Lysimachia Quadriflora	Prairie Loosestrife
60000138	Lythrum Alatum	Winged Loosestrife
60000139	Mimulus Ringens	Monkey Flower
60000140	Monarda Fistulosa	Wild Bergamot
60000141	Monarda Punctata	Spotted Bee Balm
60000142	Napaea Dioica	Glade Mallow
60000143	Nicotiana Rustica	Midewiwan Sacred Tobacco
60000144	Oenothera Biennis	Evening Primrose
60000145	Oenothera Rhombipetala	Small-Flowered Primrose
60000146	Opuntia Humifusa	Prickly Pear Cactus
60000147	Osmorhiza Claytoni	Sweet Cicely
60000148	Oxypolis Rigidior	Cowbane
60000149	Parthenium Integrifolium	Wild Quinine
60000150	Pedicularis Canadensis	Wood Betony
60000151	Pedicularis Lanceolata	Marsh Betony
60000152	Penstemon Digitalis	Foxglove Beardtongue
60000153	Penstemon Gracilis	Slender Beardtongue
60000154	Penstemon Grandiflorus	Large-Flower Beardtongue
60000155	Penstemon Pallidus	Pale Beardtongue
60000156	Petalostemum Candidum	White Prairie Clover

60000157	Petalostemum Foliosum	Leafy Prairie Clover
60000158	Petalostemum Purpureum	Purple Prairie Clover
60000159	Petalostemum Villosum	Silky Prairie Clover
60000160	Phlox Divaricata	Wild Blue Phlox
60000161	Phlox Glaberrima Interior	Marsh Phlox
60000162	Phlox Pilosa	Prairie Phlox
60000163	Physocarpus Opulifolus	Prairie Ninebark
60000164	Physotegia Virginiana	Obedient Plant
60000165	Plantago Purshii	Woolly Plantain
60000166	Polemonium Reptans	Jacob's Ladder
60000167	Polygala Polygama	Sand Milkwort
60000168	Polygonatum Canaliculatum	Solomon's Seal
60000169	Polytaenia Nuttallii	Prairie Parsley
60000170	Potentilla Arguta	Prairie Cinquefoil
60000171	Prenanthes Alba	Lion's Foot
60000172	Prenanthes Racemosa	Rattlesnake Root
60000173	Psoralea Tenuiflora	Scurfy Pea
60000174	Pycnanthemum Tenuifolium	Slender Mountain Mint
60000175	Pycnanthemum Virginianum	Mountain Mint
60000176	Ranunculus Rhomboideus	Prairie Buttercup
60000177	Ranunculus Pensylvanicus	Bristly Crowfoot
60000178	Ratibida Columnifera	Long-Headed Coneflower
60000179	Ratibida Pinnata	Yellow Coneflower
60000180	Rosa Arkansana	Pasture Rose
60000181	Rosa Setigera	Illinois Rose
60000182	Rudbeckia Hirta	Black-Eyed Susan
60000183	Rudbeckia Laciniata	Green-Headed Coneflower
60000184	Rudbeckia Subtomentosa	Sweet Black-Eyed Susan
60000185	Rudbeckia Triloba	Brown-Eyed Susan
60000186	Ruellia Humilis	Wild Petunia
60000187	Sanguisorba Canadensis	American Burnet
60000188	Saxifraga Pensylvanica	Swamp Saxifrage
60000189	Silene Regia	Royal Catchfly
60000190	Silphium Integrifolium	Rosin Weed
60000191	Silphium Laciniatum	Compass Plant
60000192	Silphium Perfoliatum	Cup Plant
60000193	Silphium Terebinthinaceum	Prairie Dock
60000194	Sisyrinchium Campestre	Blue-Eyed Grass
60000195	Sisyrinchium Campestre Alba	White Blue-Eyed Grass
60000196	Smilacina Racemosa	Solomon's Plume
60000197	Smilacina Stellata	Starry Solomon's Plume
60000198	Solidago Graminifolia	Grass-Leaved Goldenrod
60000199	Solidago Nemoralis	Old Field Goldenrod
60000200	Solidago Riddellii	Riddell's Goldenrod
60000201	Solidago Rigida	Stiff Goldenrod
60000202	Solidago Speciosa	Showy Goldenrod
60000203	Solidago Ulmifolia	Elm-Leaved Goldenrod
60000204	Taenidia Integerrina	Yellow Pimpernel
60000205	Tephrosia Virginiana	Goat's Rue
60000206	Teucrium Canadense	Germander
60000207	Thalictrum Dasycarpum	Purple Meadow Rue
60000208	Thalictrum Dioicum	Early Meadow Rue
60000209	Thaspium Trifoliatum	Meadow Parsnip
60000210	Tradescantia Bracteata	Prairie Spiderwort

60000211	Tradescantia Occidentalis	Western Spiderwort
60000212	Tradescantia Ohiensis	Ohio Spiderwort
60000213	Valeriana Edulis	Valerian
60000214	Verbena Hastata	Blue Vervain
60000215	Verbena Stricta	Hoary Vervain
60000216	Vernonia Fasciculata	Ironweed
60000217	Vernonia Missurica	Missouri Ironweed
60000218	Veronicastrum Virginicum	Culver's Root
60000219	Viola Conspersa	Dog Violet
60000220	Viola Eriocarpa	Yellow Violet
60000221	Viola Palmata	Early Blue Violet
60000222	Viola Papilionacea	Common Blue Violet
60000223	Viola Pedata	Bird's Foot Violet
60000224	Viola Pedatifida	Prairie Violet
60000225	Viola Sagittata	Arrowleaf Violet
60000226	Wulfenia Bullii	Kittentails
60000227	Zizia Aptera	Heart-Leaf Golden Alex
60000228	Zizia Aurea	Golden Alexander
60000229	Achillea Millefolium	Yarrow
60000230	Agastache Foeniculum	Fragrant Giant Hyssop
60000231	Aster Sagittifolius	Arrow Leaved Aster
60000232	Astagalus Crassicarpus	Prairie Plum
60000233	Cirsium Muticum	Swamp Thistle
60000234	Epilobium Coloratum	Willow-Herb
60000235	Gerardia Paupercula	Small-Flowered Gerardia
60000236	Helianthemum Bicknellii	Frostweed
60000237	Helianthus Divaricatus	Woodland Sunflower
60000238	Helianthus Giganteus	Giant Sunflower
60000239	Helianthus Tuberosus	Jerusalem Artichoke
60000240	Heterotheca Villosa	Golden Aster
60000241	Houstonia Longifolia	Long-Leaved Bluets
60000242	Hypericum Majus	Small St. John's Wort
60000243	Lilium Superbum	Turk's Cap Lily
60000244	Lysimachia Ciliata	Fringed Loosestrife
60000245	Oenothera Surrulata	Tooth-Leaved Primrose
60000246	Potentilla Fruticosa	Shrubby Cinquefoil
60000247	Sagittaria Latifolia	Arrow-Head
60000248	Senecio Aureus	Golden Ragwort
60000249	Senecio Plattensis	Prairie Ragwort
60000250	Senecio Paupercaulis	Balsam Ragwort
60000251	Solidago Missouriensis	Missouri Goldenrod
60000252	Stachys Palustris	Woundwort
60000253		Oxeye
60000254		Marsh Milkweed
60000255		Blazing Star
60000256		Cream False Indigo
60000257		Tall Blazing Star
60000258	Castilleja Sessiflora	
60000259	Polygala Senega	
60000260	Acorus Calamus	Sweet Flag
60000261		Rough Blzing Star
60000262		Giant Hyssop
60000263		Stiff Tic-Seed
60000264		Newport Bluegrass

60000265		Park Bluegrass
60000266		Perennial Rye
60000267		Creep Red Fescue
60000268		Old Midwest Wildflower Mix
60000269		Short Dry Wildflower Mix #1
60000270		Nk North American Wildflowers
60000271		Mesic Mix
60000272		Mesic Wildflower Mix
60000273		Rosa Species
60000274	Osmundo Cinnamomea	
60000275	Adiantum Pedatum	
60000276	Athyriam Felixifemina	
60000277	Mertensia Virginica	Virginia Bluebells
60000278		Blanket Flower
60000279		Upright Prairie Coneflower
60000280		Greyhead Prairie Coneflower
60000281		Dane's Rocket
60000282		Rough Oxeye
60000283		Thickspike Gayfeather
60000284		Spiked Gayfeather
60000285		White Yarrow
60000286		Pitcher Sage
60000287		Lance Leaf Coreopsis
60000288		Mexican Red Hat
60000289		Common Vetch
60000290		Country Wildflowers
60000291		Butterfly
60000292		Cutting Garden
60000293		Floral Groundcover
60000294		Native Harvest
60000295		Mixed Native Forbs
60000296		Showy Penstemon
60000297		Stiff Sunflower
60000298		Columnar Coneflower
60000299		Prairie Bush Clover
60000300		Narrow-Leaved Milkweed
60000301		Dotted Mint
60000302	Dicentra Cucullaria	Dutchman's Breeches
60000303	Spirea Alba Rosea	Meadowsweet
60000304	Cornus Stolonifera	Red Osier Dogwood
70000001	Agropyron Smithii	Western Wheat Grass
70000002	Agropyron Trachycaulum	Slender Wheat Grass
70000003	Andropogon Gerardi	Big Bluestem
70000004	Andropogon Hallii	Sand Bluestem
70000005	Andropogon Scoparius	Little Bluestem
70000006	Bouteloua Curtipendula	Side-Oats Grama
70000007	Bouteloua Gracilis	Blue Grama
70000008	Bouteloua Hirsuta	Hairy Grama
70000009	Bromus Kalmii	Prairie Brome
70000010	Bromus Purgans	Hairy Wood Chess
70000011	Buchloe Dactyloides	Buffalo Grass
70000012	Calamagrostis Canadensis	Blue Joint Grass
70000013	Carex Alopecoidea	Foxtail Sedge
70000014	Carex Annectens Xanthocarpa	Yellow-Fruited Sedge

70000015	Carex Hysticina	Bottlebrush Sedge
70000016	Carex Pensylvanica	Pennsylvania Sedge
70000017	Carex Scoparia	Pointed Broom Sedge
70000018	Carex Sprengelii	Long-Beaked Sedge
70000019	Carex Stipata	Awl-Fruited Sedge
70000020	Carex Vulpinoidea	Fox Sedge
70000021	Elymus Canadensis	Canada Wild Rye
70000022	Elymus Virginicus	Virginia Wild Rye
70000023	Hierchloe Odorata	Sweet Grass
70000024	Hystrix Patula	Bottlebrush Grass
70000025	Juncus Tenuis	Path Rush
70000026	Koeleria Cristata	June Grass
70000027	Panicum Virgatum	Switch Grass
70000028	Paspalum Ciliatifolium	Hairy Lens Grass
70000029	Scirpus Atrovirens	Dark-Green Bulrush
70000030	Scirpus Validus	Great Bulrish
70000031	Sorghastrum Nutans	Indian Grass
70000032	Spartina Pectinata	Cord Grass
70000033	Sporobolus Asper	Rough Dropseed
70000034	Sporobolus Heterolepis	Northern Dropseed
70000035	Stipa Spartea	Porcupine Grass
70000036	Stipa Viridula	Green Needle Grass
70000037	Bromus Ciliatus	Fringed Brome
70000038	Calamovilfa Longifolia	Sand Reed Grass
70000039	Juncus Greenei	Greene's Rush
70000040	Muhlenbergia Cuspidata	Stonyhills Muhly
70000041	Muhlenbergia Glomerata	Swamp Satin Grass
70000042	Phragmites Communis	Reed Grass
70000044	Typha Latifolia	Cattail
70000045		Big Bluestem Roundtree
70000046		Bug Bluestem Bonilla
70000047		Native Tall Grass Prairie Seed
70000048		Tall Grass Mix
70000049		Bluegrass Mix
70000050		Mn/Dot 150
70000051		Mn/Dot 300
70000052		Short Dry Mix (Grasses)
70000053		Mesic Grass Mix
70000054		Mn/Dot 500
70000055		Local Mixed Prairie
70000056		Sand Dropseed
70000057		Prairie Dropseed