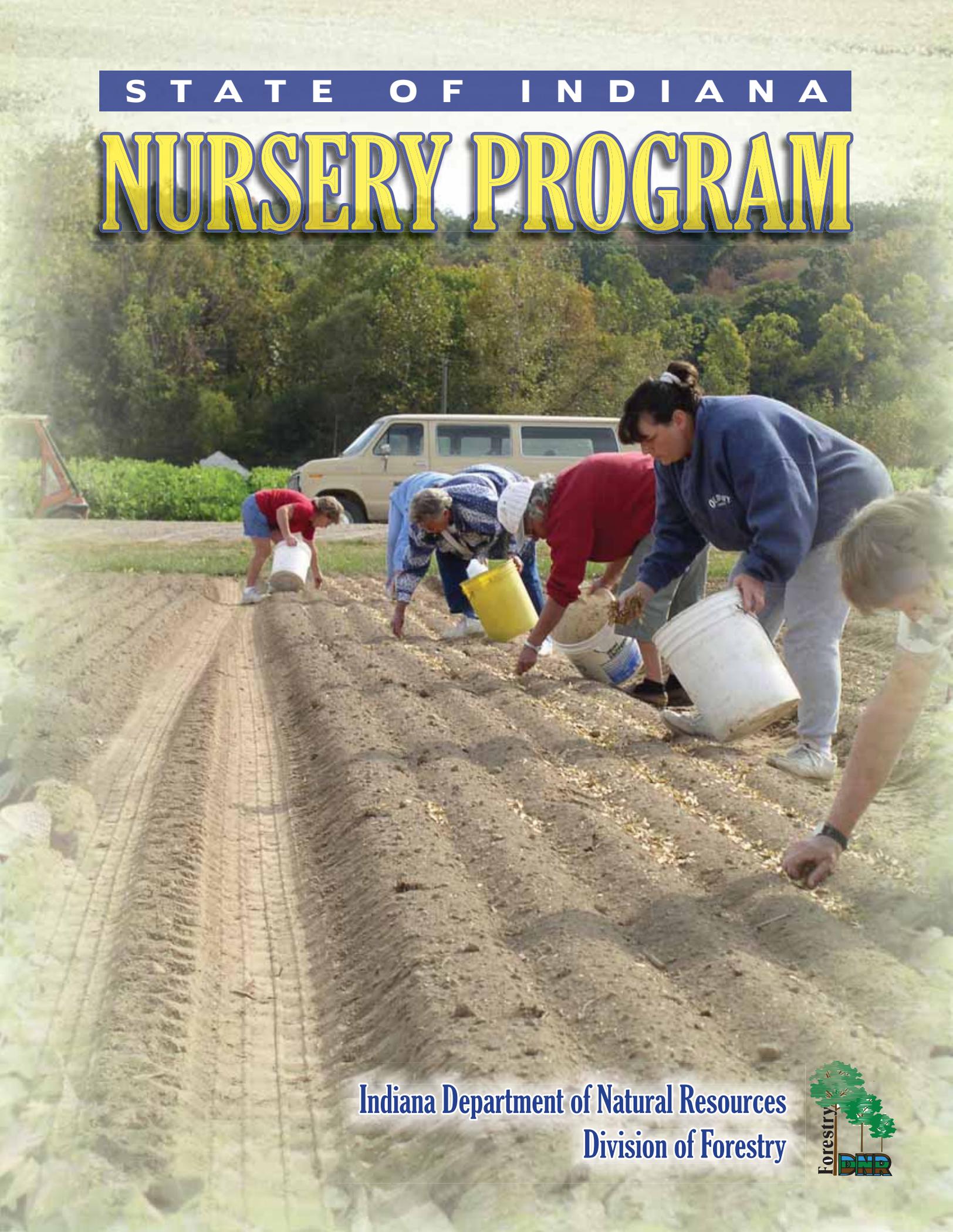
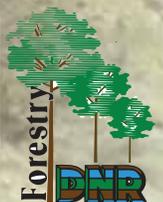


STATE OF INDIANA

NURSERY PROGRAM



Indiana Department of Natural Resources
Division of Forestry



History

Indiana's nursery program began at the turn of century and has enjoyed a productive and successful history. Indiana's favorable climate and productive soils made the state's land ideal for agricultural use. Loss of forest cover led to serious soil erosion, siltation of streams and lakes, and a shortage of timber. In 1901, the first state legislation was enacted to create the Clark Forest Reservation to address these problems. By 1903, steps were being taken to establish the first state nursery at Clark.



Native deciduous species were planted in the early years; however, experience showed that many of our native trees were not well suited for establishment on the heavily eroded sites that were in need of reforestation. Emphasis gradually shifted to species such as black locust, which can fix nitrogen, and white pine and red pine, which can adapt to poor soils. The idea was to plant pines and allow them to grow and return the soil to a productive condition that would support a deciduous forest. As anticipated, the native deciduous species naturally seeded into the pine and locust mix of these early plantings, and gradually returned the species composition to one of mixed hardwoods. As more productive sites became available for planting, emphasis returned to planting native deciduous species.

Reforestation has always been a joint effort between landowners, nurseries and foresters, along with conservationists in other areas. A constant theme has been that seedling demand is cyclical and is driven by state and federal incentives for landowner reforestation investments. Nurserymen were always challenged to grow the species and the quantity of stock that was needed at the time.

Currently, the DNR operates two tree seedling nurseries. Jasper-Pulaski State Nursery in northern Indiana, located just north of Medaryville on U.S. 421, and

Vallonia State Nursery in southern Indiana located near Vallonia in Jackson County, serve landowners statewide.



Indiana's reforestation effort has become an effective partnership between the nurseries, Indiana citizens, agencies and corporations. The nurseries provide high quality seedlings at low cost, landowners provide the site and the planting, DNR foresters and biologists provide plans and recommendations, and county agricultural offices provide incentive through farm programs. It is a partnership that promises a greener tomorrow for Indiana.

There are six customer purchasing categories (Figure 1). Timber production and mine land reclamation customers make up the biggest portion of who we serve. Over 50 percent of our seedling inventory fits into these two categories. Windbreak establishment, primarily in the northern part of the state, is an important use of the conifers. Wildlife enhancement and government-assisted programs are other uses of the planting stock we produce. Every year the Indiana Nursery Program offers a free seedling to all third-grade students across the state, to celebrate Arbor Day. Promoting tree planting to children at a young age is a way to show the importance of planting trees and the benefits they provide the society. Over the years "whom we serve" has not changed but the percentages within categories fluctuate from year to year.

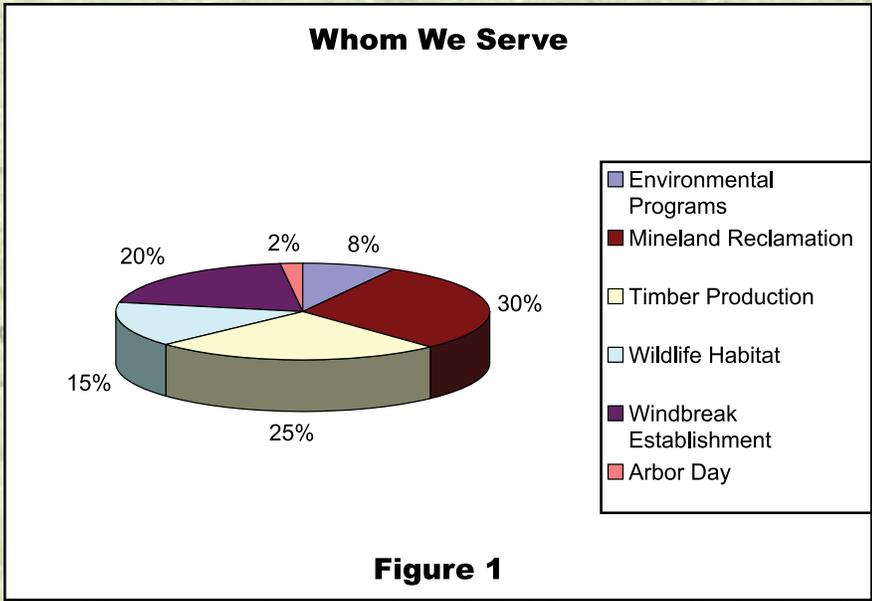
In 1964-65, the Division of Forestry depended on the U.S. Forest Service for production of planting stock at the Vallonia Nursery. At that time Vallonia was federally owned. Due to the state's reliance on Vallonia Nursery for seedlings and to improve efficiency, the Division of Forestry requested that Vallonia Nursery be turned over to the state. The Forest Service agreed to lease the Vallonia Nursery to the State of Indiana in 1965 and let the Division of Forestry operate it.

The state legislature passed Senate Bill 690 in 1973. Under this statute, the state nursery program

TABLE 1 ANNUAL SEEDLING SALES (Selected Species)

SPECIES	1997	1998	1999	2000*	2001	2002	2003	2004	2005	2006	2007	2008	2009
WHITE PINE 3-0	187,441	137,260	119,711	124,524	101,703	219,073	264,434	239,500	214,500	297,500	391,800	224,250	243,950
WHITE PINE 2-0	277,750	216,850	458,444	477,635	551,653	350,567	274,390	120,600	181,325	191,620	221,862	221,607	63,070
BLACK CHERRY 1-0	56,052	151,950	150,600	156,678	203,640	106,500	160,041	78,500	158,300	169,600	189,850	117,157	132,925
BLACK OAK 1-0	51,652	120,600	158,200	164,863	45,500	79,775	69,390	98,700	110,925	75,115	123,900	87,606	131,800
BLACK WALNUT 1-0	319,285	278,750	487,756	508,035	564,640	459,050	427,672	214,000	390,759	471,400	394,453	281,008	267,063
BUR OAK	77,101	333,000	153,800	160,186	278,181	234,600	355,667	86,600	261,163	272,200	308,500	255,100	220,400
GREEN ASH 1-0	291,902	143,700	314,400	327,387	329,325	225,160	192,518	70,900	63,400	59,300	27,200	0	0
RED OAK 1-0	342,001	431,555	558,805	582,282	537,861	332,834	212,131	157,400	236,860	352,651	337,762	220,308	195,625
TULIPTREE 1-0	130,447	289,195	222,467	231,510	396,575	261,793	85,990	163,900	247,225	258,900	172,539	161,430	115,351
WHITE ASH 1-0	65,501	171,650	322,535	336,157	43,800	92,800	31,865	115,500	103,200	49,500	50,100	0	0
WHITE OAK 1-0	79,876	204,150	281,500	293,480	470,528	150,600	297,190	157,100	305,625	152,300	267,066	168,500	271,900
BUR OAK 2-0	68,997	0	0	0	0	98,641	76,600	39,600	78,800	69,115	96,800	24,900	63,100
RED OAK 2-0	22,550	43,150	0	0	0	74,800	91,000	73,600	112,200	107,000	0	0	0
WHITE OAK 2-0	113,250	0	0	0	0	126,100	58,400	99,900	57,500	198,620	30,850	80,800	0
Total	2,083,805	2,521,810	3,228,218	3,362,737	3,523,406	2,812,293	2,597,288	1,715,800	2,521,782	2,724,821	2,612,682	1,842,666	1,705,184
Total Annual Sales	3,780,500	4,538,000	5,611,000	5,846,200	5,792,000	5,334,500	4,744,400	5,855,600	5,194,000	4,665,600	4,816,100	3,675,900	3,532,000

*Estimates



would provide 100 free seedlings to each senator and representative for the purpose of informing citizens in their district about the value of planting trees and the value of a state nursery program.

Ownership of Vallonia Nursery was transferred to the state in 1981 as a result of a land exchange with the Forest Service. Four years after the ownership transfer, an 81-acre tract of land adjacent to the nursery was purchased by the Division of Forestry. In 1988 development of seedbed areas on this land began, along with renovation of the old

nursery seedbed areas, office, and grading and storage facilities. At this same time, renovation efforts also began at the Jasper-Pulaski Nursery.

During this decade the need to expand nursery production capacity became apparent. This was driven by three factors. First, increased funding of the Conservation Reserve Program in the 1980s as part of the Federal Farm Legislation led to a large increase in demand for seedlings. These seedlings were used to replant areas once active in agricultural production. Second, as hardwood timber value increased, tree planting moved from worn-out soils to productive agricultural soils. Since research showed that hardwood seedlings could be successfully planted on these sites, nursery production moved from mainly conifer production to hardwood production. Third, along with the shift from conifer to deciduous production came a shift from small seedling to large seedling production. Small pine seedlings performed satisfactorily on the worn-out soils of the early 1900s, but small seedlings were poorly suited to plantations on the more fertile sites of the late 1900s. Not only were our nurseries challenged to grow many different species, but they also faced the challenge of producing significantly larger seedlings at a reasonable cost. In the early 1970s average seedbed densities were in the range of 25 seedlings per square foot. Today, seedbed density averages about five seedlings per square foot in our nurseries and quality is equal in importance to the total number produced.



Using high-quality seedlings to assure good out-planting survival is a

goal the nursery strives to reach. Emphasis is put on the various cultural practices to ensure the highest quality seedlings are available to our customers. Seedbed densities, thorough testing of seed, fertilization schedules, pest control and proper packaging all are a part in raising quality seedlings. The majority of the seed in which we raise our nursery stock comes from stands throughout Indiana. This assures the seedlings are acclimated to Indiana's climate and growing conditions.

Restoration of high-quality timber stands starts with quality seedlings. Predicting future timber species demand is difficult at best. Past trends and current demand are our best indicators of future needs. Seed collection is geared toward the demand we see today as well as predictions for what the future might hold.

Since the beginning of the Division of Forestry, the nursery has helped landowners, both public and private, regrow Indiana forestlands. Almost all landowners who plant trees understand the long-term nature of the venture. The economic returns from such an investment are delayed for many years, usually past the lifetime of the tree planter. However, the benefits to the quality of our soil, water, and air begin quickly, as do the benefits to wildlife. Society reaps these benefits as much or more than the tree planter or growers.

Total production at both nurseries peaked at 7 million seedlings in 1991, then fell back to between 4 and 5 million seedlings annually during the mid-1990s (Table 1). As we entered the 21st century, production began its cyclic decline to where, presently, annual production rests at approximately 3.60 million. When the cycle of demand again peaks, our nurseries stand ready to meet landowner needs.



Additional Information
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