Update of Longleaf Pine Orchards, Seed Production Areas and Improvement Work

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Background

Longleaf Pine, like many other southern yellow pine species has been planted across the South for many decades. In the early years of tree improvement activities, Longleaf enjoyed an initial interest by many in forest industry, tree improvement organizations and state forestry agencies. As the science and industry developed, production of Longleaf and improving selections to be deployed languished in favor of developing species that grew faster, produced more reliable seed crops and were less difficult to establish. Loblolly pine became the tree of choice for most of the region and Longleaf was an almost forgotten relative. Even though Longleaf has never enjoyed the attention that Loblolly has, it was never completely forgotten as an option and has continued to be produced and some selections have been improved. Several private industry and governmental agencies continued to work with it and advanced selections are available. The selections are produced in orchards and families do exist. Some organizations also rely only on seed production areas that are carved out of natural stands and maintained to promote seed production.

Longleaf Orchards

In 2009, a census of orchards, seed production areas and seed inventory was conducted by Barbara Crane of the US Forest Service. That report shows that at that point in time there were 503 acres of 1st Generation Longleaf orchards and 37 acres of 2nd generation orchards in existence. Table 1 below provides the breakdown.

Table 1. Owner and Acreage of improved Longleaf Orchards

Owner	1st Generation Acres, Source and Deployment Zone	2nd Generation Acres, Source, Zone and Age
US Forest Service, National Forest System	59 acres, Louisiana 20 acres, NC and SC 35 acres, N&S Alabama 30 acres, Florida 8 acres, Texas 42 acres, Mississippi	
US Forest Service, Research		2.5 acres, Louisiana and Mississippi
ArborGen	24 acres, Florida, Alabama, Mississippi	
Florida Division of Forestry	44 acres, Florida	
International Paper		3 acres, not maintained
Kimberly Clark	5 Acres, mountain Longleaf, N Alabama	

Louisiana Forest Commission	25 acres, SE Texas, S Alabama, S Mississippi	
Mississippi Forest Commission	26 acres, Mississippi	
NC Forest Service	135 Acres, NC and SC	
PCA	18 acres, Florida	2 acres, Florida
Plum Creek	9 acres, NC and SC	2 acres, NC and SC
Rayonier	16 acres, N Florida, S Georgia, S Alabama	
South Carolina Forestry Commission	12 acres, NC and SC	30 acres NC and SC

These orchards were all developed with selections made for improved volume production, increased height growth, decreased time spent in the grass stage and consideration of form. Some have undergone rouging to remove lesser performing families. Many, if not all of the owners listed produce seedlings from the improved seed from these orchards. Some of the owners listed are currently developing advanced selections for even greater improvement.

Seed Production Areas

Seed production areas are often used to supplement the demand for seed and in some cases as sole sources for seed. These areas are usually manipulated natural stands that have been thinned, removing the trees with less desirable traits based upon their phenotype. The remaining trees are allowed to naturally produce seed. While not truly improved based upon progeny testing, these areas do afford owners to produce seed on a commercial scale and the seedlings produced from them are usually of good quality. The 2009 census provides the information found in Table 2 below.

Owner	Acres and Age
ArborGen	30 acres, 14 years
Florida Division of Forestry	78 acres, 12 years
NC Forest Service	27 acres, 40 years
Plum Creek	28 acres, 45 years
Rayonier	98 acres, 35-45 years
South Carolina Forestry Commission	8 acres, 10 years
Smurfit Stone	30acres, unknown

The collection areas older than 30 years should be in full production by now. For the younger areas, production should just be starting and by age 20, adequate seed should be produced.

Implications

Seedling customers desiring to plant the best available genetics for Longleaf pine have options. It is recommended that end users ask questions about a vendors available seedling options before ordering. Once a choice for a level of improvement is made and the seedlings planted, there is no returning.

Selections are available to meet many objectives, whether it is growth, form, disease resistance or straw production. It pays to know what you are getting before you plant.