

TREES FOR OHIO

Ernest J. Gebhart

Other members of this panel are going to reveal the basic statistics about the coal strip mining industry in Ohio so I will confine my remarks to the revegetation of the spoil banks. So it doesn't appear that Ohio confined its tree planting efforts to spoil banks alone, I will rely on a few statistics.

The Division of Forestry started operating tree nurseries in the early 1900's at Wooster and Chillicothe. These efforts were consolidated on the Marietta Nursery in 1925. Species grown were primarily conifers with some of the better hardwoods which were distributed to the state forests and private landowners for planting on abandoned agricultural land. The program was increased in 1948 with the opening of the Green Springs Nursery in Sandusky County. A new Ohio strip mine law requiring some limited grading and revegetation of spoil banks prompted the Division to devote this nursery exclusively to the growing of deciduous species. In the early 1950's, the Zanesville SCS Nursery was transferred to the Division making the Reforestation Section capable of producing 15 to 17 million trees. For a number of years, shipment of trees to strip miners for planting disturbed soils absorbed about half of the nursery production.

This all changed abruptly after the passage of the 1972 Ohio Strip Mine Law. This legislation provided the mine operator with an option of revegetating with a heavy stand of grasses and legumes or a lighter seed mixture and the establishment of a satisfactory stand of trees. Economical influences took over at this point and most miners discontinued the use of trees in their planting plans. There was some tapering off as pre 1972 mined land was required to be planted to trees. The end effect of this change of tactics was to reduce the demand for hardwood planting stock by about seven million trees a year and to create vast areas of grasslands. It should be recognized here that experience had shown that the survival of trees planted in an area seeded to grasses for erosion control was at least doubtful.

We have not felt that this endeavor was lost for all time and have kept our nursery production capability intact for a rebound into the future when tree planting on mined lands will again come into proper perspective. There

are several significant factors working toward this end which give us encouragement. The 1977 federal strip mine law and accompanying rules require or encourage the planting of trees on areas that before mining supported tree cover. Recent amendments of Ohio's law tend to support this requirement. While planting trees on replaced topsoil and with erosion control grass cover being a possible deterrent is a new concept for us, I am sure that with proper soil amendment and seeding practices it can be done. This is the area where we see the first significant return to tree planting.

A second area that we believe will, could or should utilize trees is the revegetation of unreclaimed mined lands. Most of these lands were mined prior to 1972 and topsoil was neither saved or restored. In most cases, it is not now available to the reclaimer. These spoils, with proper grading, can be revegetated with trees. This is apparent from the many successful operations prior to 1972. With the magnitude of funding that is or will be available for this type of reclamation work, we see a considerable demand for tree planting stock developing, particularly for legumes and quality hardwoods.

A third area is one that has not been explored to any extent but will be confronting us in Ohio in the not too distant future. It has been well demonstrated that with the use of heavy applications of lime and fertilizer various types of grasses can be established on quite acid spoils or soils. Frequent reapplication of these amendments will undoubtedly sustain them for long periods. The obvious flaw here is that the strip miner is responsible for the revegetation only until his bond is released. If he does not own the surface as well as the coal, his interest ceases here. It is then incumbent upon the landowner to provide the necessary cultural practices to keep the grass cover intact. He will only do so if he is utilizing the grass and making a profit from it. Otherwise, it will deplete the initial application of lime and fertilizer and start to thin out. Eventually barren areas will develop and the once secured spoil

will be subject to further erosion and weathering. I am not predicting how rapidly this could or will take place but am proposing a solution when it does occur.

As the heavy foliage encouraged by the initial application of lime and fertilizer starts to dissipate, the landowner has an opportunity to reforest the area as he would any old field. If by this time he has not brought the mined area into his farm plan for annual crops or livestock pasture, he would be well advised to get it into a permanent tree cover. This will require a minimum of cost outlay to maintain and will have the potential of some future monetary return. It is difficult to predict when this will reach significant proportions but we anticipate having the capability of meeting the demand.

You can see from these remarks that we have not abandoned the idea of trees on spoil banks and do not intend to do so. Therefore, I have some suggestions for your consideration:

1. On selected mined areas, trees and grasses can be grown together if the rate of grass seeding is kept at the minimum necessary to prevent erosion. The grass becomes a nurse crop to reduce soil surface temperatures and aid tree survival. Rough grasses, such as Kentucky 31 tall fescue, orchard and rye grasses, are suggested at a rate of 20-25 pounds per acre. The trees should be spaced 7' x 7' with about 900 per acre.
2. Some upgrading of nursery stock quality will be necessary. We propose to retain the 2-0 conifer and 1-0 hardwood age classes with oversized stock being graded out. Large seedlings do not do well on spoil banks and are difficult to hand plant. No fall planting is recommended. Even though topsoil is replaced, I doubt if machine planting can be satisfactorily accomplished. Hand planting will still prevail.

3. We are suggesting two basic tree mixtures for your consideration:

- A. Acid spoils or soils: Black locust, Rose acacia, European black alder, sweet gum, autumn olive, silver maple, and Norway spruce.
- B. Alkaline spoils or soils: White and green ash, cottonwood, silver and sugar maple, red, white and black oak, tuliptree and white pine.

There are other species and combinations of species that will survive and do well on selected mine sites. Each revegetation plan must consider all the parameters involved and options available.

I feel strongly that the conversion of former woodland to grass, where the raising of livestock is not a viable industry, is a disservice to landowners and communities that will require considerable unnecessary expense in the future. There will never be a better time than at the conclusion of the mining process to establish tree cover if the mining and reclamation plan is tailored to the long term needs to permanently stabilize the land. The expedient release of a bond or the minor cost differential is not sufficient justification to leave this part of the job undone.