

Developing a New Nursery¹

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Abstract.--The development of the Medford Forest Nursery is tracked from infancy through planned completion. Discussion centers around construction of facilities and production of planting stock.

Since Don Perry, Nurseryman, Humboldt Nursery, report "New Developments at the Medford Forest Nursery", to you in Manhattan, Kansas during August of 1977, many things have happened. In my presentation I will attempt to bring you to where we presently are in development and production and carry you through to completion of construction and maximum production.

To properly orient you I will begin by providing you with an illustration of the specialists that have been involved with this project.

The nursery selection and initial development team consisted of the following specialists from local forests and the Region Six Office in Portland, OR.

Forest Timber Staff Officer - Leader	
Forest Silviculturist	Civil Engineers (4)
Sanitation Engineer	Mechanical Engineers(2)
Soil Scientist (2)	Timber Staff, R.O.
Nurseryman	Landscape Architect(2)
Soil Conservation	Forest Supervisor
Service Reps. (2)	Law Enforcement
Administrative Officer	Officer

As the development progressed the complexity of the group changed to:

Civil Engineers(6)	Electrical Engineer
Mechanical Engineer	Landscape Architect
Building Architects (2)	Draftsman
Nursery Manager	

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Consultants & Design
Drainage Pumping
Irrigation Structural
Engineer Mechanical
Engineer Electrical
Engineers

The present nursery management staff consists of:

Nursery Manager	Nursery Manager Asst.
Horticulturist	Nursery Management
Bus. Mgmt. Asst.	Trainee
Receptionist-Typist	Purchasing Specialist
Equipment Mechanic	Forest Worker Leader
Irrigation Specialist	Equip. Mechanics Helper
Tractor Operators (3)	Irrigation Helper
	Temporary Employees (12)

LAND DEVELOPMENT

During the summer of 1977 the entire seedling growing area including roads was leveled and shaped. Old milk parlors, feeding corrals, fences, irrigation ditches, bridges, concrete irrigation headers, etc. were removed. A "wet area" was discovered on the south end of the property in the early stages of leveling. It wasn't long before we determined that the inundated area was the result of a failing drainfield that was originating on private property to the South. The landowner was contacted. Nothing happened to remedy the situation so we elected to level over the top of the drainfield. No problems were encountered, that is, we didn't lose any equipment.

Following closely behind the leveling was subsurface drainage. The drainage lines were trenched and/or plowed in using a laser to control slope of the line. Where wet areas existed the interval between lines was shortened from sixty (60) feet to thirty (30) feet. When the drainfield area was to be

drained the problem with the adjacent landowner still existed. We couldn't stop the project so the line was severed. We expected the flowing material to drop into our perimeter drain to be diluted by other drainage water. This idea worked for awhile but, the soil was soon saturated causing a return of surface flow. The flow was channeled back on the adjacent landowner. Now, two and onehalf (2 1/2) years later there is an indication that the problem will soon be solved.

BUILDING CONSTRUCTION

During the winter of 1977-1978 the first of the nursery buildings were constructed. Those completed were a warehouse, equipment and implement storage, gas-oil house and three field storage buildings. The field storage buildings are being used to store bird and rodent protection screens.

The office and employee center were designed and ready for contracting the summer of 1978. However, due to a shortage in funding we elected to forego their construction. We decided instead to have the pumping station, reservoir inlet pipe, sump pump, etc., constructed since our objective is to grow seedlings and without water you can't do much.

We have learned that even in Southern Oregon winter time construction can provide quite a challenge. The seedling processing facility, refrigerated tree storage, employee center and office are being constructed this summer. The office may be ready for occupancy by October 15, 1979. The processing building should be ready by late December. We will have 10-12 million seedlings to process this winter and will need this facility to accomplish our task. The employee center will be ready early to late December. Tree storage buildings will not be available for this year's crop. The refrigeration controls are delayed, making it necessary for us to go to local refrigerated fruit storage again this packing season.

Building construction that will occur in CY 80 and 81 includes seed storage and laboratory; maintenance building, consisting of four units: maintenance/fabrication, carpentry and plumbing; pesticide storage and additions to our equipment and implement storage facilities.

ROADS AND SURFACE DRAINAGE

Hanley Road Entrance - Construction and paving of the Hanley Road (cast) entrance was recently completed. This contract began last year with

construction of a bridge across Jackson Creek. The road has been held in abeyance until right-of-ways could be obtained. You've seen bridges or overpasses that lead to nowhere, well, we had ours too.

Old Stage Road Entrance - The entrance road from Old Stage (west) was accelerated after an accident occurred. This work was accomplished by the Rogue River National Forest Road Crew. Using this work force saved considerable time in contract preparation and saved approximately \$15,000 over having the work done by contract.

Paving - Final paving of main access roads, and parking areas will occur after major construction is completed.

Nursery Interior Roads - Nursery interior or farm roads will be designed the winter of 1979-1980. Several design concepts will be considered. One of the major problems is intercepting and draining the water that flows out of the growing areas. All interior roads will be surfaced with crushed rock.

OTHER DEVELOPMENT

Underground Irrigation System - The underground irrigation system was designed and constructed during the winter of 1977-1978. This system was ready for use by April 15, 1978. The system is automated and can be controlled electronically from the pumping facility. Manual control is also available.

Reservoir - Construction of the 104 acre foot reservoir began in late 1977. Excavation and formation of the embankment was completed in June 1978. This contract was lucrative enough to bring in one of the best organized and equipped contractors that I have observed in my twenty (20) years with the Forest Service.

The hypalon liner for the reservoir was installed during the summer of 1978. We began filling the reservoir in February 1979.

Pumping, Inflow, Outflow Handling Areas - Construction of the pumping, inflow, outflow facility was accomplished during late fall 1978, winter 1978-1979 and early spring 1979. Spring sowing 1979 was delayed until late April when the pumping facility became available.

Reservoir Inlet Pipe - The reservoir inlet pipe (RIP Line) was laid during the winter of 1978-1979. This 3,000 foot long, 24 inch diameter concrete pipe feeds the reservoir by gravity flow. Construction began after

fumigation for the 1979 sowing was completed. Contamination of the fumigated area occurred at the bed ends where excavated material was piled. In some areas the excavated material left mounds at the ends of some of the beds after the contract was completed. The mounding has caused inundation of seedlings at the ends of beds. Trenching has been necessary to alleviate this problem.

Sump Pump - A sump pumping system has been installed at the termination of the subsurface drainage system. This pumping system provides the opportunity to recycle subsurface drainage water back through the irrigation system. The water from this source is some of the purest irrigation water we have available. This source is not being utilized at this time as we have concerns about salt buildup and water dispersed pathogens.

Jackson Creek Diversion 4 Bridge - The Jackson Creek diversion and bridge are in the construction phase. This structure will be completed by late August 1979. Fortunately the Contracting Officer's Representative (COR) who administered the RIP line constructed a temporary diversion to provide irrigation water until this project was completed.

Domestic Water - Domestic water is transmitted through a 10,000 foot long, 12 inch transit pipeline, to the nursery from the City of Medford water lines. The Forest Service paid for the installation.

City of Medford water was utilized to nurture our 1978 crop. Without the water source we wouldn't have been able to produce our crop in 1978. There were restrictions on flow, use days of the week, and hours of irrigation.

Sewer - The Bear Creek Valley Sanitary Authority (BCVSA) provides sewage transmission and treatment for much of the Rogue River Valley. BCVSA will serve the Nursery's needs through their proposed West Side Trunk. Federal funding for the trunk has not arrived. The sewer project will not begin until FY 80, after October 1979. The majority of our people buildings will be available for occupancy during mid-winter 1979-1980. A holding tank will be installed to handle the sewage until the trunk line is completed.

Fences - Security of the nursery has not been a problem. By 1980 the exterior boundary fence will be complete. The interior fence around the reservoir will be completed in early 1980.

Production and Shipping of Planting Stock

Table 1.

Planned			
Sow		Lift	
Year	Quantity M's		Quantity M's
1978-79	10,000		---
1979-80	20,000	2-0	10,000
1980-81	30,000	2-0	20,000
1981-82	30-40,000	2-0	30,000

Actual			
Sow		Lift	
Year	Quantity M's	Year	Quantity M's
1978-79	10,000	79	2,200
1979-80	30,000	79-80	1-0 10-12,000
		& 2-0	
1980-81	35,000	80-81	1-0 30,500
		& 2-0	

The figures in table one illustrate that the nursery has an accelerated program. We were successful with the 10 million test sowing in 1978 and this has influenced the present production levels. Late in 1978 I asked the Regional Office what to expect for sowing in 1979. I was asked how does a sow of 30 million sound. My response was positive and of course the next question was how about 40 million. I responded with "let's go back to 30". Thus, we had a sow of 30.5 million this spring.

A herbicide that was used in 1978 caused a few problems. A paper has been presented that addresses that problem.

A portion of the Douglas fir 1-0 was lost because of fumigation vapor drift. The pines and most of the true firs were exposed to the material but were not affected. The damage to the Douglas fir occurred on the bed ends adjacent to the road (40' wide) that the contractor was using to turn his machine around. To overcome this problem we plan to change the direction of the fumigation injection and tarp laying operation.

Lifting and Packing - The spring 1979 processing operation was accomplished in the warehouse. Fortunately, the Regional electrical engineer is foresighted and had an electrical panel installed that would accommodate addons. Extra lights, outlets and drop lines for conveyor tables were added without an additional panel. Heating was accomplished with an oil fired space heater.

Seedlings to be processed were stored temporarily in the unheated warehouse. Processed seedlings were placed in a refrigerated van and transported to local refrigerated fruit storage facilities for long term storage.

Seed stratification was accomplished in rented refrigerated fruit storage. We did, however, rent a refrigerated van to hold the dry tree seed at the nursery until it could be sown.

Seed Sowing and Culturing - The 10 million crop that was sown in the spring of 1978 consisted of eleven (11) species and 115 different geographic populations.

Around 50 percent of the first planting was ponderosa pine with Douglas fir making up about 45 percent of the production. The first crop was sown with the Ojyord seed drill that the Missoula Equipment Development Center (MEDC) had purchased, modified and tested. After the sowing was completed this drill was shipped to the Albuquerque Nursery in New Mexico.

In addition, a Wind River Drill was borrowed from the Humboldt Nursery. This machine is being used to sow seed lots that have a low viability, primarily the true firs. Incentive cedar presents special sowing problems. This species is being hand sown and covered with 1/4 to 3/8 inch of sawdust.

The 1978 and 1979 crops were sown in late April and early May because we lacked an operational irrigation system. We now have a fully operational system and anticipate that we can begin sowing seed as early as mid-March. Fall sowing intrigues us and we will be testing fall sown sugar and white pine, western larch, and mountain hemlock this fall.

Equipment Maintenance and Fabrication - A portion of the warehouse has been partitioned off and is being used to house the maintenance and fabrication projects. This arrangement is working well.

Cultural Resources - An intensive cultural resource inventory was conducted in the early stages of nursery development. Four possible archeological sites were identified. One of the four sites was found to be significant enough to warrant an intensive digging operation. The survey found nothing of great importance.

In addition, the farm house (McCredie) located on the administration site was determined to have some historical value. This residence was constructed in 1907, which is long after the early construction that occurred in Jacksonville, a local town, in the mid 1800's.

Federal regulations require intensive evaluations of structures that are historically significant. Use options open to us were: 1) use the structure as an office; 2) lease the building and land it sits on to a private business; 3) tear it down and salvage the significant items; 4) sell the house and have it removed from the site.

The building wasn't large enough to accommodate the planned staff. Costs to remodel and add on would be excessive. A private enterprise would not mix well with other activities. Destruction and salvage was not acceptable because of the adverse effect. The Advisory Council on Historic Places would not have permitted this option. The selected alternative was to sell the house and have it removed from the administrative site. This option was acceptable provided the exterior of the structure does not lose its historic significance.

It has taken 2 1/2 years to work through the process and our goal is finally being reached.

The structure is currently being offered as surplus property to other Federal Agencies. I don't look for anyone in the Federal Government to pick it up. Many local residents have inquired about the disposition of the McCredie house and we currently have a listing of sixteen people who are interested in purchasing it.

Additional Items - Building a nursery adjacent to an established residential neighborhood has presented a few challenges. There are a few nursery managers here today that can testify to the authenticity of the following consolidated listing:

1. Equipment operation prior to 7:00 a.m. or after 9:00 p.m.
2. Dust caused by cultural operations.
3. Weeds along fence lines.
4. Gophers moving from cultivated areas to adjacent landowners.
5. Water flowing onto adjacent landowners.
6. Water flowing from adjacent landowners.
7. Irrigation water over spraying fences, etc. that need painting.
8. Trespass of adjacent landowners live stock.
9. Traffic increases on local roads.
10. Severed drainfield lines.
11. Perimeter drains reducing flows to domestic wells and irrigation sumps.

Positive public input has also been good. An effort was made early in the development to keep the local people informed and we have benefited from that approach. The majority of the neighborhood is behind the project and will help when called upon.