# WESTERN NURSERY SITUATION

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My purpose here today is to attempt to give you a brief evaluation of the western nursery situation. To do this, I'll rely on statistics published in July, 1976, in the Directory of Forest Tree Nurseries in the United States that the Forest Service puts out. These statistics were collected for the fiscal year 1975. I'm relying on them because they are the latest complete compilation of data relating to tree nurseries. These statistics, manipulated in different ways, tell us a number of things about the nursery situation in the west. In the process I've accumulated quite a few numbers for you. They'll all be in the proceedings. I think the thing you want to concentrate on here is looking at the general percentages and trends for a couple of reasons: (1) there are too many numbers to remember, and also, the statistics are about 18 months old and (2) the nursery situation in the west is changing rapidly.

First, let us look at an overview of western nurseries as compared to the rest of the country. Looking at figure 1, we can see that, of the United States forest tree nursery output, a rather small portion is produced in the west. Total tree production in 1975 was about 1,288 MM trees while the west produced 292 MM trees. That's about 23% of the national total, so the figure I think to remember here is that we're producing about a quarter of the forest tree planting stock for the United States.

Going on to figure 2, which is a breakdown of the number of nurseries in the United States, we see that there were about 190 units producing forest trees in our country. Of this 190, 88 were in the western 17 states. That means that, although we're producing only 25% of the planting stock for the country, we have about 50% of the nurseries. This number is probably a reflection of the fact that many of our nurseries are much smaller than the nurseries in the south. Also we have larger geographic areas to deal with and perhaps it is more economical to have smaller units that are a little closer to the planting sites.

Now, it seems worthwhile to see how western nursery tree production is structured. One way to look at this is to measure containerized tree production. You are probably familiar with the difference between bare-root and containerized forest tree planting stock. Most of us in this room have followed the development of the modern containerized tree seedling systems over the last 8-12 years. If you'll look at figure 3, you'll see that, nationally, container production is 5% of the total number of trees produced, or 64 MM trees out of a total of 1,288 MM in 1975. In the west, with a total production of 292 MM, 20% of the production is container stock, for a total of 58 MM seedlings. The point is most of the container production in the U.S. for forest planting stock is in the west, even though we're producing only about 25% of

# 1975 U.S. PRODUCTION

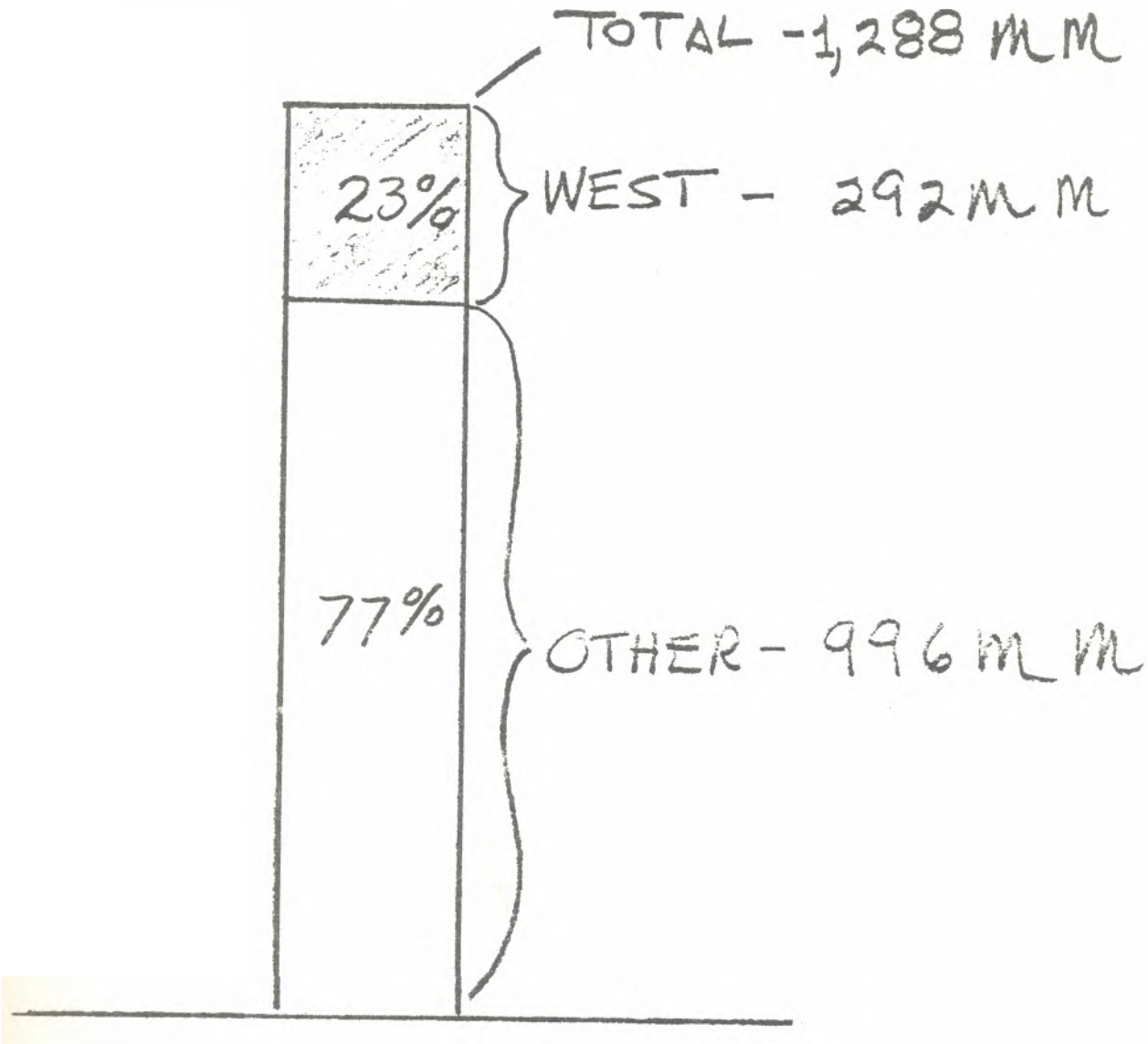


Figure 1

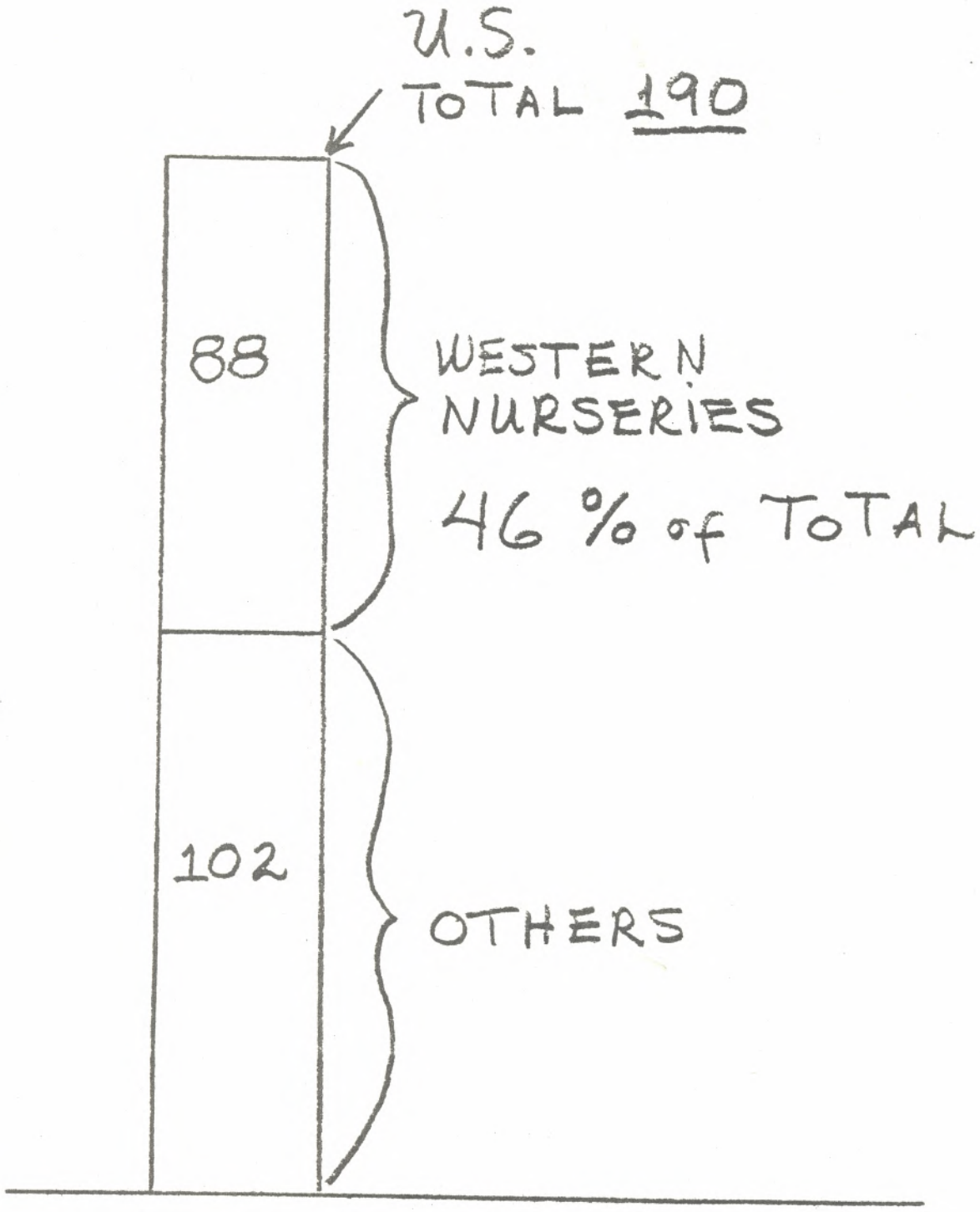


Figure 2

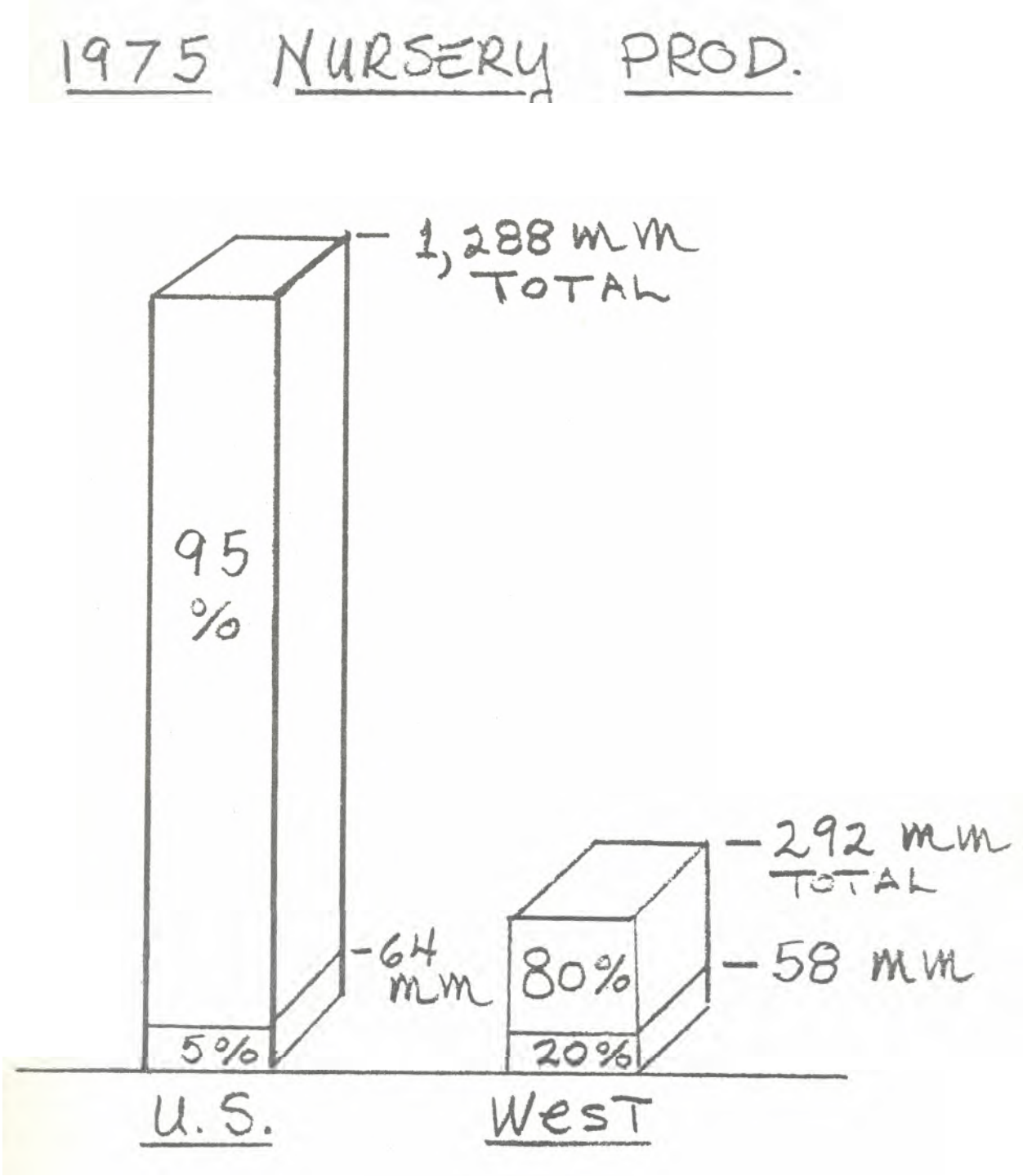
1975 NURSERY PROD.
1,288 MM TOTAL
95 %
5%
64 MM
292 MM TOTAL
80%
20%
58 MM
U.S.
WEST

Figure 3

the total tree production for the country. This probably reflects a number of different things like a shortage of bare-root nursery capacity in early 1970's in the pacific northwest and rapid expansion of industrial container production there. Also, it may reflect some of the difficulties we've had with survival and growth of bare-root planting stock on some of the more severe sites in western states.

Figure 4 breaks our nurseries in the west into types by bare-root, container, and those producing both bare-root and container stock. In 1975, 53% of our nurseries produced bare-root stock only, 32% produced only container stock, and 15% produced both container stock and bare-root. Such figures change rapidly and I think the percentage now producing containerized stock and producing both types has probably climbed several percentage points. Note that in the west, approximately 50% of the nurseries were involved completely or partially in production of containerized stock while nationally only 28% produced such seedlings. The number of nurseries involved in container production is surprising in light of the relatively small percentage of total nursery production attributable to containerized tree seedlings. In other words, 28% of the nurseries in the U.S. were engaged in producing containerized trees. However, this production only amounted to 5% of the national total. In the west, 47% of the nurseries were engaged in producing containerized trees and this engagement produced 20% of western forest tree planting stock. This seems to indicate the container system is being evaluated in many places as an alternative or supplement to bare-root tree production.

To assess the location of forest tree seedling production in the west, the easiest way is by state. Looking at figure 5 you'll see tree production in millions by state. Note where the concentrations are. Oregon and Washington have the highest totals, with Oregon at 38% of the total and Washington at 36%. Other states putting out a sizeable number of trees are California, with 11% of the total; Idaho, about 7% of the total, and North Dakota, which is a power in nursery production in the shelterbelt program, 3%. You can see several states don't show any nursery production at all. A few of these have changed since 1975, but not to any great degree, in most cases.

Figure 6 shows the distribution of forest tree nurseries (without any reference to size) over the western U.S. Here, again, these figures have changed some since 1975, but they still indicate where concentrations of nursery production are. The states of Oregon, California, and Washington are far ahead of all the interior western states.

Another way to look at nursery statistics is ownership. That is: Federal, State, private, forest industry and so forth. Figure 7 shows the distribution of forest nursery ownership for the west and for the U.S, in 1975. The comparison between our situation and the rest of the country is what we want to look at. We have about half of the forest industry nurseries, We have about half of the other public nurseries, These include soil conservation district nurseries, Bureau of Indian Affairs nurseries; that sort of thing. We only have a little less than a quarter of the nation's state nurseries in the west. We have about 2/3's of the federal nurseries. One of the things that surprised me is that nearly all the private forest tree nurseries are in the west. These are private wholesalers of forestry planting stock for forest planting and for Christmas trees. State nurseries provide this service in the east. In the west private nurseries satisfy

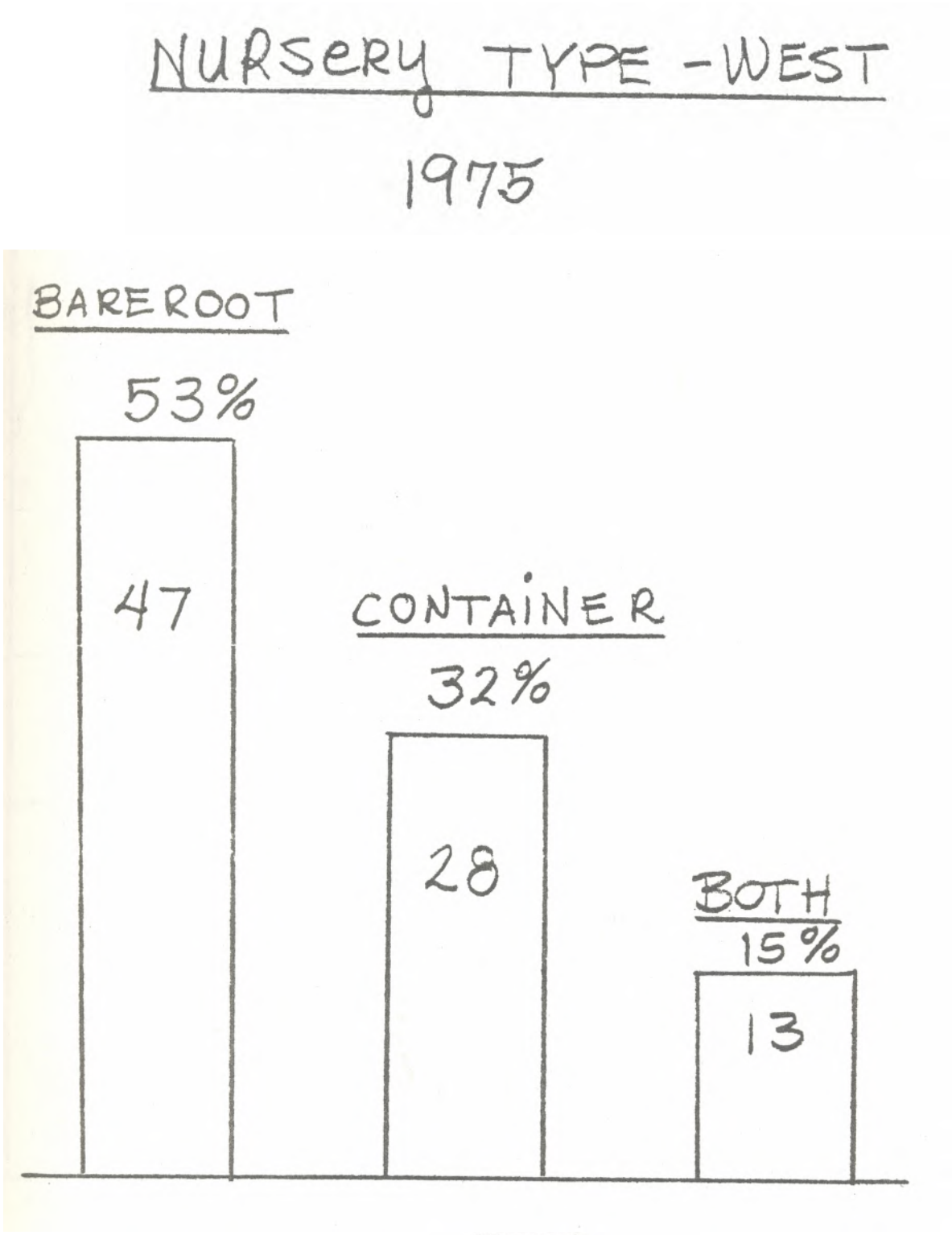
NURSERY TYPE - WEST
1975
BAREROOT
53%
47
CONTAINER
32%
28
BOTH
15%
13

Figure 4

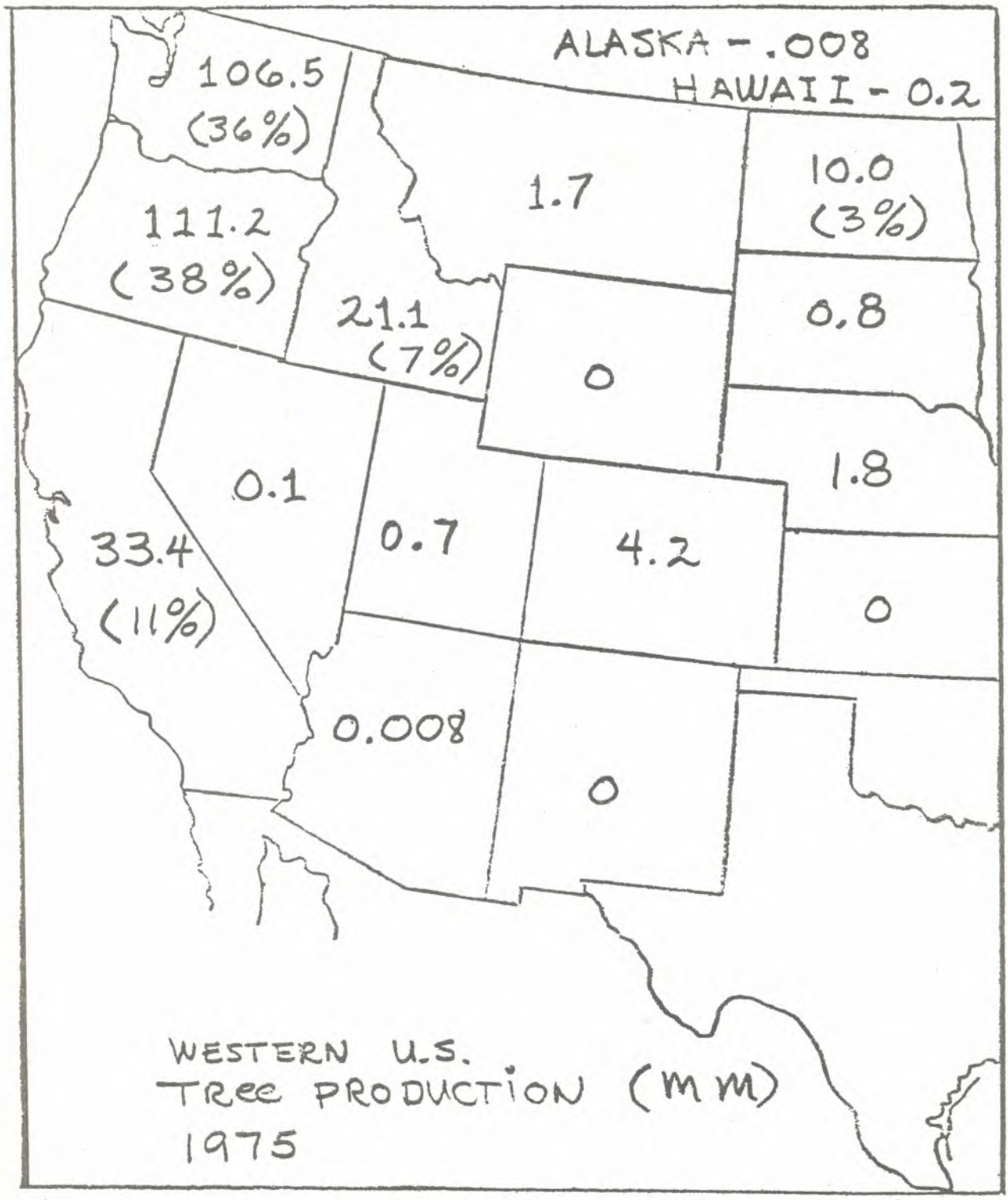
ALASKA - .008
HAWAII - 0.2
106.5
(36%)
111.2
(38%)
1.7
10.0
(3%)
21.1
(7%)
0
0.8
1.8
0.1
33.4
(11%)
0.7
4.2
0
0.008
0
WESTERN U.S.
TREE PRODUCTION (MM)
1975

Figure 5

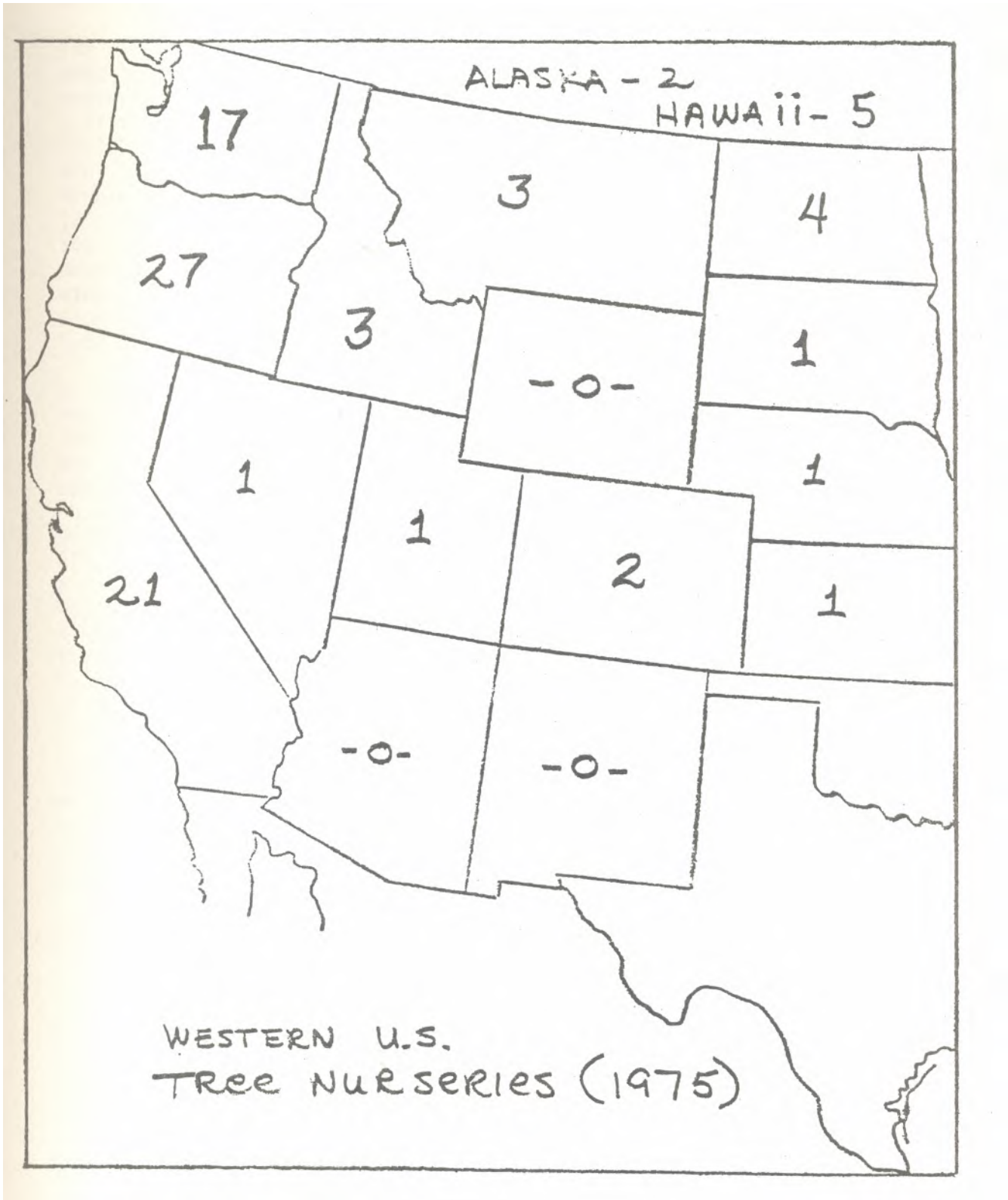
ALASKA - 2
HAWAii - 5
17
3
4
27
3
-0-
1
1
1
1
2
21
1
-0-
-0-
WESTERN U.S.
TREE NURSERIES (1975)

Figure 6

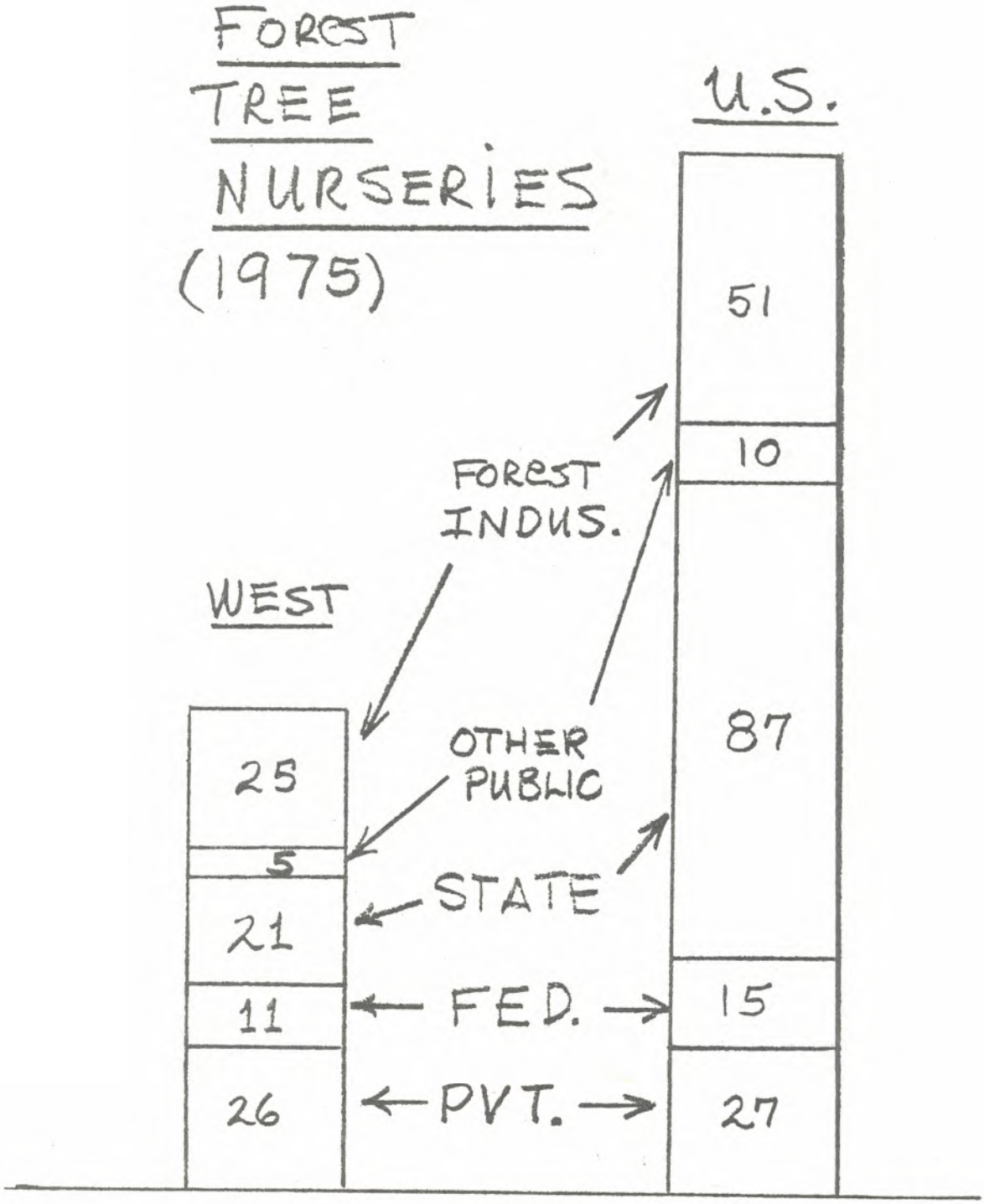
FOREST
TREE
NURSERIES
(1975)
U.S.
WEST
FOREST
INDUS.
OTHER
PUBLIC
STATE
FED.
PVT.
25
5
21
11
26
51
10
87
15
27

Figure 7

much of this demand, Ornamental nurseries that run a few forest trees as a sideline have largely been excluded from these statistics.

The way to look at nursery trends is to compare earlier statistics in the west to the latest ones. To do this, I used the 1971 report of forestry nurseries in the U.S. and attempted to compare it to 1975 figures. This is a little hard to do because "private" tree nurseries were not itemized in 1971, the same way they are in 1975. However, we can see some trends that are interesting. The number of forest industry nurseries has more than doubled in the period. Other public nurseries have increased to a degree (20% increase or something like that). State nurseries have increased about the same percentage and so have the federal installations. Of course, most of you know, we're in a period of rapid nursery development and expansion in the west right now. These figures are interesting but they don't picture the rapid expansion that's going on. A similar diagram comparing 1980 with 1975 would probably show greater growth.

Well, I hope those illustrations gave you an idea of where we are in numbers, locations, and types of nursery production in the west. Now, let's talk for just a minute about recent developments and trends. I won't go into any detail because several other speakers will discuss development projects at their nurseries. Presently the U.S.F.S. is undergoing an expansion program in its western nurseries to enable it to increase its production capacity considerably. New nurseries are being developed at Albuquerque, New Mexico, and Medford, Oregon. Nurseries are expanding at a number of other locations including Placerville and McKinleyville, California. The Wind River nursery at Carson, Washington, and the Coeur d'Alene nursery, in Idaho, have recently enlarged their cold storage facilities. At the Mt. Sopris nursery in Colorado new greenhouses have been built for container production. Expansion of container facilities is also going on at Beaver Creek in Oregon. A number of the western states have recently expanded their nursery production capabilities. The state of Nevada is building a new container nursery in Las Vegas and plans another one at Washoe Lake, near Carson City. The state of Utah has recently developed a new nursery south of Salt Lake City. The state of Colorado is continuing to expand its container production capabilities. North Dakota has recently built a new greenhouse at its Towner Nursery. You'll see the relatively new facility here at Kansas later on in the meeting. Forest industry has made several expansions recently including a new greenhouse facility for Champion Timberlands at Bonner, Montana. Potlatch Corporation has just finished building a new container facility at Lewiston, Idaho. There have been several new container facilities developed recently in northern California, Oregon and Washington by forest industry and private wholesale nurseries. Other federal agencies (Bureau of Indian Affairs, and the Bureau of Land Management, etc.) have recently developed a number of nursery facilities. The ones that I'm aware of are BIA container nurseries at Fort Apache, Arizona, Nespelem, Washington, and Ronan, Montana. Others are being considered in northern California and Minnesota. The Bureau of Land Management has recently developed a container nursery at Grant's Pass, Oregon. So, from this very brief thumbnail sketch you can see that there is a lot of activity going on in nursery development in the western U.S. I'm sure I've left someone out. If I've hurt anybody's feelings in the process, I'm sorry.

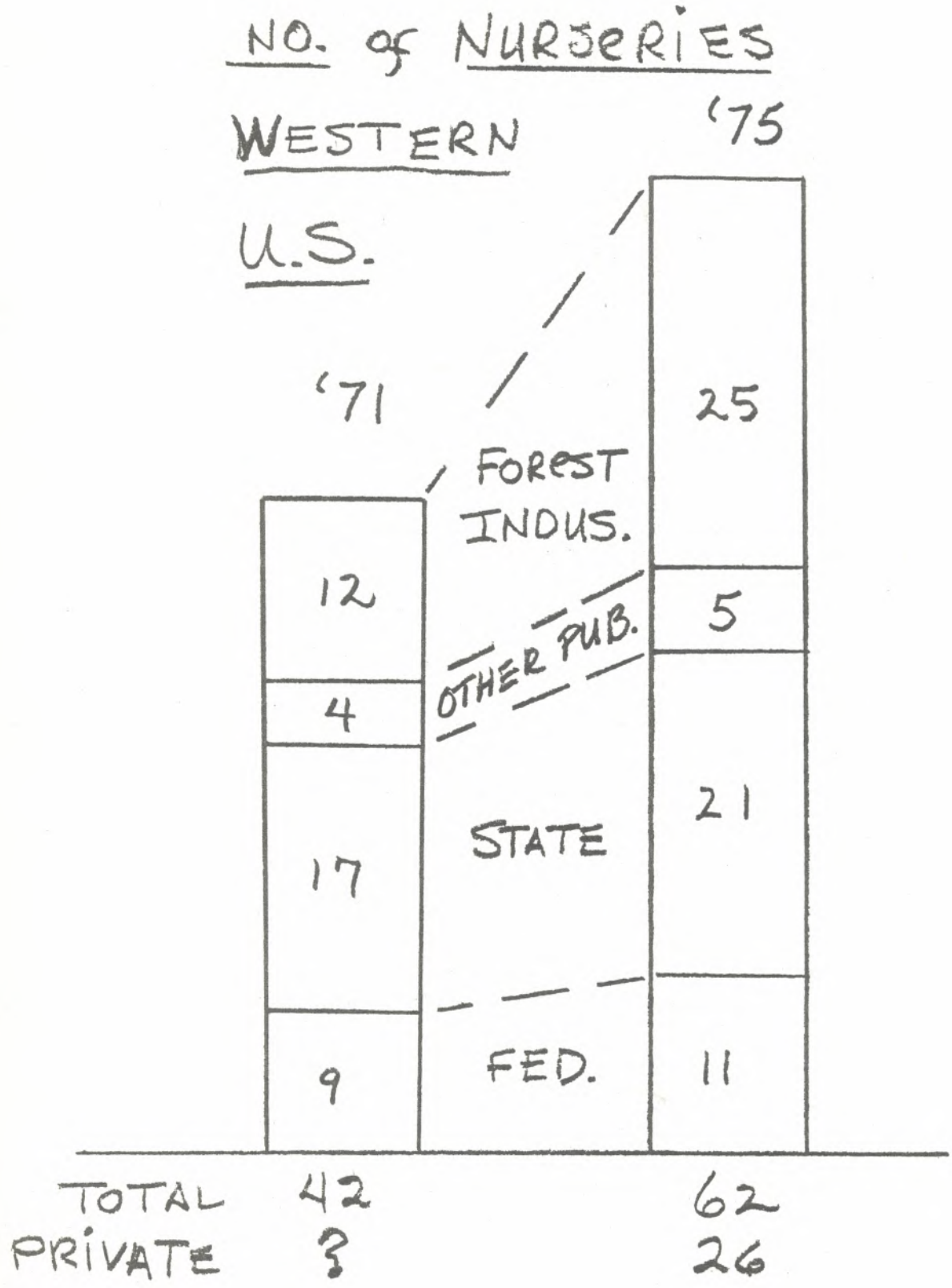
NO. of NURSERIES
WESTERN U.S.
'71
'75
FOREST INDUS.
OTHER PUB.
STATE
FED.
12
4
17
9
25
5
21
11
TOTAL
PRIVATE
42
?
62
26

Figure 8

What about recent operational trends in western nurseries? First of all, we're mechanizing tree lifting at many bare-root nurseries in the west because effective mechanical lifters are becoming available. Skinner overhead oscillating irrigation systems are being rapidly abandoned for impulse type sprinkler systems, usually using portable aluminum pipe. Much more cold storage capacity is being built at nurseries now than has been the case in the past. More over-winter storage of planting stock is taking place. Some work is going on in nursery "bed houses" in the northwest in order to extend the growing season. This was initiated at the Weyerhaeuser nurseries and is now under active study at the Forest Service nurseries at Coeur d'Alene and Bend. More and more nurseries and nurserymen are becoming involved in tree improvement related work; either in the seed extraction process or sowing of improved seed and culture of improved stock. In the pacific northwest there is considerable activity with regard to seedling specifications. This involves growing and sorting trees to meet specifications. Also, there is a west-wide nursery herbicide screening project underway. Some of the details of this study will be discussed tomorrow in Roger Sandquist's presentation at 9:00 a.m. Well, those are a few of the recent operational trends that came to my mind. There probably are others I'm not aware of.

Finally, there are some problems and needs we need to generally outline. One of the items regarding nurseries in the west is the difficulty of securing adequate water rights and hanging on to those we have. Some nurseries have experienced water restrictions this year. Also we're going to have to become more and more pollution conscious. Chemical pollution and runoff from nurseries is going to be closely monitored in the future and should be considered very carefully in all of our development efforts. Of course there is the old saw about needing more research and indeed we do. We surely need more work on juvenile seedling physiology, nutritional needs of forest tree seedlings, nursery soil management techniques, and mycorrhizal fungi applications, (there is considerable work going on the last one right now). It strikes me as strange that with a vastly expanded nursery development the last few years, both in the private sector and the public sector, that I see no commensurate increase in the level of nursery-related research. This is something that we all can point out to our supervisors and our contacts in research in order to emphasize the need for more research information to enable us to do the operational job more efficiently and more effectively. With that suggestion, and the fact that its coffee time, I'll end the talk right now.