

## Second Growth Redwood Worthy of Good Management Practices To Obtain Perpetual Income

Emanuel Fritz

Once thought worthless, second growth redwood suddenly demonstrated value and there are now more than a dozen small mills cutting such growth solely.

The typical second growth redwood forest now being cut is a mixture of redwood sprout trees and seedling trees of several species, due to the cutting practices of the early loggers and to the accidental freedom from fires.

### Present Logging Too Close

Most owners are selling off their second growth without stipulating in their contracts how the timber is to be logged. The stands are being logged too clean. The few trees left are badly injured by tractors. The slash often is piled against the trees so they will be destroyed when the debris is burned. Thus, few or no effective seed trees will be left as a seed source for natural reforestation.

The typical small logger takes all trees that will make boards or two-by-fours. He thus penalizes himself because he cuts some trees that are under the profit margin. He would be better off financially if he were to leave the under-sized trees—those under 18 inches, breast high.

If a second growth owner has it in mind to clear his land and create pasture, he should give careful

The average annual growth rate in the better stands is between 500 to 750 board feet per acre, although it easily could be 1,000 board feet under good management. These figures refer only to average annual growth rate, which is the present day volume averaged over all the years of the stand.

When a stand is under 20 years old it is making only cubic feet and no board feet. When it has reached the age of the present stands it is growing at the rate of probably 2,000 to 3,000 board feet per acre per year. This is called periodic annual growth, the growth of the current year alone or the average for the last 5 or 10 years.

Some stands being cut today are growing in value at the rate of \$6.00 per acre per year, when stumpage is valued at \$2.00 per thousand board feet.

It is evident that some of the second growth stands are being cut just when they are making their best increment.

### Recommended Practices

The above should not be construed to mean that the owner should refrain from cutting his timber. Young timber should have some cutting going on in it all the time after it has passed 20 to 30 years of age.



Second growth redwood 60-70 years old. A light thinning, made 10 years before the picture was taken, removed only deformed trees. As a result, the remaining trees are making more rapid growth and are producing more upper grade lumber. The 1937 cut should have been heavier to make the thinning operation pay better and to stimulate the residual stand to still greater acceleration in growth rate.

thought to the probable cost of clearing off all debris and seeding the land to grass and to the probable returns from the grass. It is not at all unlikely that he will find growing trees is more profitable and less troublesome than grazing cattle or sheep. Most of the second growth land is really absolute forest soil and will grow trees more profitably than grass. That is something that must be determined for each block of land.

If the second growth owner were to sell off only certain marked or otherwise indicated trees, and see to it that the remainder be not destroyed, he would have a nest egg of immature trees that could soon make enough growth to replace that which was removed—do it in less than the original time, and make better grades of lumber. The reserved trees at the same time would reseed the logged area for the third crop.

The immature trees have remarkable capacity for accelerated growth after thinning. They usually have such long clean slender trunks that subsequent growth should produce knot-free lumber.

### Perpetual Income Possible

The 50- to 75-year-old timber being cut today could easily be managed on a perpetual yield or income basis. It requires only conscious application of simple rules of tree growth and of logging.

In many cases such timber has produced 50,000 board feet per acre in from 60 to 75 years. On the average, the growth is considerably less, not because the soil may be poor but because the area is not completely stocked.

The first products may be only fuel wood and posts. When their removal cannot be accomplished at an immediate profit, the cost may not be warranted for any but the stronger owners even though the effect on quantity, and particularly quality, growth is very beneficial.

Much can be done to obtain substantial immediate returns from the present stands, and to improve their future production.

Usually the bulk of the volume is in the larger trees, those over 20 inches, breast high. Of a given total number of trees one-third may be above 20 inches and contain three-quarters of the total volume.

If there are 150 trees per acre in a 75-year-old stand, 50 may be 12 inches and under, another 50 may be 12 to 20 inches, and 50 over 20 inches. The latter third, if removed carefully, will yield not only the bulk of the total volume but all that is economically merchantable.

The smaller trees cannot be cut, logged and milled at a profit. They will grow faster because they have more room. Because they have clean trunks, as a rule, they will produce a better grade of lumber. Instead of leaving cutover land that may be a liability, the owner will have a rapidly appreciating asset.

An owner who has a sufficiently large acreage can spread his cut over more years, and thus have less wait for future returns. Should he own or control 5,000 acres, he could cut 5,000,000 feet per year perpetually. At \$2.00 per thousand feet a 5,000-acre stand should gross \$10,000 per year for stumpage alone. Smaller

## State, Federal and Interstate Roles In Conservation

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Four improvements are of special interest:

1. Many legislatures need reorganization to ensure fewer but more effective committees.

One or two legislative committees would seem sufficient for dealing with natural resources.

Two committees may be preferred because of the differences between the economic and social problems concerning renewable resources, such as agricultural land, forests, water, and wild life, and those concerning nonrenewable resources, such as oil, gas, and minerals.

2. Better provision of professional staffs for the legislatures should be made, especially for the two resource committees.

3. Planning divisions attached to the office of the chief executive—the governor—or to the office of his general manager—the chief budget officer—may aid in the coordination of executive agencies.

4. State planning boards would be helpful where plans of both branches of government and of organized industry, agriculture, labor, and the like could be studied and discussed independently from governmental functions.

### State-Federal Cooperation

Much has been written lately about the alleged infringement of state rights by the federal government in the realm of natural resources, especially in agriculture.

Regardless of whether such infringement has taken place or not, state rights may be defended best if the states themselves shoulder and discharge effectively in the social interest the duties with which these rights are constitutionally associated.

Better intrastate coordination of resource policies is only one of the conditions which may facilitate more active participation of the states. Another condition is the better institutional machinery for coordinating resource policies between the states and the federal government.

Strictly intrafederal coordinating bodies—for example, the Pacific Coast Federal Regional Council—may facilitate state-federal cooperation by representing the federal government in state-federal bodies.

An illustration of this is the Pacific Coast Board of Intergovernmental Relations established in 1945, comprising California, Oregon, and Washington.

The membership consists of the field chiefs of federal agencies as selected by the Pacific Coast Federal Regional Council and representatives include the governor, the chairman of the State Commission on Interstate Cooperation, a representative of the official organization of cities and municipalities, and a representative of county supervisors or commissioners.

The principles of organization contain the provision that the membership from the federal government shall be less in number than the combined total of representatives of the other jurisdictions.

The purposes of the Board are for discussion and cooperation, and any conclusions are purely advisory. It has aided in the elimination of conflicts in the execution of existing local, state, and federal laws and regulations. It has helped in the pooling of facts and exchange of ideas for the planning of government action concerning some vital economic and social problems.

### Interstate Cooperation

In the Commissions on Interstate Cooperation, the Council of State Governments already possesses an effective mechanism through which efforts toward better interstate co-

owners could space their yield in periods of five years or more.

Sales contracts should contain provisions for cutting only certain designated trees, protecting the remainder against damage, and for safe slash disposal.

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## Results of Experiments with Sweet Sudan and Sudan 23 And Suggestions For Planting

Fred N. Briggs

Widespread interest in Sweet Sudan has been aroused among California growers of Sudan grass. This variety was developed by Dr. R. E. Karper and Dr. J. R. Quinby of the Texas Agricultural Experiment Station from a cross between Leoti, a sweet sorghum, and Common Sudan grass followed by backcrosses to Sudan.

The process of breeding resulted in a rapid return to the general characteristics of Common Sudan, but allowed the breeders to incorporate by selection the sweet juicy stalk, non-shattering seed habit, sienna glume color, and the resistance to Red Spot, a bacterial disease, characters from the Leoti parent.

A number of sweet juicy selections which showed high palatability and good productivity were bulked to

limiting factor. They were cut July 2, August 9, and September 26 at which time they were in the proper stage for making hay.

### Yield of Hay—Lbs. per Acre

	Sweet Sudan	Sudan 23	Gain of 23 over Sweet
1st Cutting.....	3779.8	4306.1	13.9%
2nd Cutting.....	2268.9	2838.3	25.1%
3rd Cutting.....	3326.2	4472.2	34.4%
Total for Season.....	9374.9	11,616.6	23.9%

First of all you will note that the difference in yield between these two varieties for the first cutting was very similar to that obtained in 1944. Furthermore, the comparative performance of Sweet Sudan grew worse as the season progressed. The gain of Sudan 23 over Sweet for the season was nearly 24 per cent which represents 1.1 ton of hay.

Much of the Sudan grown in Cali-



Showing relative growth of Sudan 23, the taller grass on the right, and Sweet Sudan, on the left.

form foundation stock of the Sweet Sudan which has been used for experimental trials and commercial plantings.

### Experimental Plantings

In March of 1944 Dr. Karper very kindly placed at our disposal a small packet of seed for experimental purposes and 3 ounces for foundation seed. Single strips 6x80 feet were sown to Sweet, Common, and 23 Sudan. A 40-inch strip was cut the full length of each plot at the proper stage of growth for making hay.

Their relative yield based on oven dry weight was: Sweet Sudan, 98.2%; Common Sudan, 100.0%; and Sudan 23, 113.5%. Because of lack of replications only a single cutting was made. Therefore, these data are of limited value except as they are confirmed in 1945.

In 1945 Sweet Sudan was compared with Sudan 23 in one-eighth acre plots replicated six times. These plots were planted April 25 and irrigated frequently so that water was never a

California is used for summer pasture. It is freely admitted that hay yields do not necessarily reflect exactly the relative pasture yields of the two varieties.

It was noted that Sweet Sudan grew slower in the seedling stage and was slower to recover after cutting. These facts suggest that, at Davis, pasture yields of Sweet Sudan very likely would be less than those of Sudan 23.

### Suggested Planting

It is possible that Sweet Sudan might perform better in some other parts of the State. In view of the results obtained at Davis, I would like to suggest to growers, who are planning to grow Sweet Sudan, that they plant a part of one pasture, say one quarter to one half to Sudan 23. This will enable them to observe, first hand, their comparative value.

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operation in the resource field could be channeled.

Special committees have been set up to study resource problems in forestry, and in agriculture, for example.

The Council has aided in the establishment of state compacts, and the corresponding permanent interstate agencies.

### Specific Resource Problems

In addition to the general problems of better interstate and state-federal coordination in resource policies, there are many specific resource problems suitable for study and recommendation by the Council, including:

1. Taxation, credit, and tenure of resources;
2. Integrated, multiple-use development of water resources;
3. State forestry legislation;
4. Conservation of wild life—fisheries, upland game, migratory birds;
5. Regulation of mining and drilling operations;
6. Administration of grants-in-aid, especially in soil conservation and including the relation between the state extension services and the fed-

eral Soil Conservation Service;

7. The function of special districts—for example, soil conservation, forestry, grazing, irrigation, fire protection—in resource conservation.

State compacts are not a necessary condition for better interstate cooperation in conservation politics, but they are helpful.

The experience gained in negotiation, concluding, and administering state compacts has resulted in a better integration of state policies, even for resources which were not directly affected.

In the past, use of state compacts has been confined largely to water, oil, and natural gas. In many cases, conservation of land, forests, grazing, minerals, and wild life can be aided by extending the use of state compacts to these resources.

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Alfalfa varieties and strain are being tested by the Division of Agronomy to determine the relative adaption, yield, disease resistance, and longevity.