

RANGE IMPROVEMENT ON JUNIPER-SAGE
SHASTA-LASSEN INTERMOUNTAIN AREA

Juniper-sage occupies several thousand acres of productive land in the drier areas of Shasta and Lassen Counties. Carrying capacity for livestock is generally low on this type of brushland before improvement.

On the Norris Myer ranch, 640 acres of unimproved juniper-sage pastures yielded an average of 4,682 animal unit days per year for 1971, 1972 and 1973. The average grazing time per year was 98 days from approximately May 20 to September 1 and each acre provided 7.3 animal unit days per year.

The improved juniper-sage pasture on the neighboring Melvin Myer ranch produced 4,974 animal unit days on 110 acres from June 1 to September 3, 1973. Each acre produced an average of 45.2 animal unit days. This is six times more than the unimproved pasture.

In recent years livestock numbers grazing on public lands have been reduced and grazing fees have increased. This change has caused some ranchers to think more about improving their deeded land to feed their livestock.

Five ranchers in the Adin area provided information on converting juniper-sage to Intermediate wheatgrass and alfalfa. The ranchers decided that the bulldozing and heavy discing should be done by custom operators and the rancher would do the remaining operations. Cost of equipment to do other remaining operations would be spread over 1,000 acres and only portions of the entire ranch unit would be improved each year. Table I shows equipment needed and the various costs involved.

Table II shows the costs of converting juniper-sage to permanent grass and alfalfa. The conversion method used by most ranchers is to

remove the brush with dozer and brush cutter and disc plow during spring and early summer of the first year. The windrowed trees are generally left in place for improved wildlife habitat. Removing the brush and disc plowing conserves moisture and also prepares the soil for seeding in the early spring of the following year. Seeding time is usually in April. The drill with cultipacker attached, immediately follows the heavy disc. This type of operation prevents the soil from rapidly drying so the planted seed mixture will germinate. The mixture used by most ranchers is ten pounds of wheatgrass and two pounds of alfalfa.

In Table II the \$47.81 per acre conversion cost seems high for range improvement on lands that are sometimes assessed for less than half that cost. The returns are economically favorable. At 15¢ per animal unit day, the pasture would be worth \$6.78 per acre per year for the improved area and for the unimproved, \$1.10 per acre per year.

Farm advisor test plots on the Melvin Myer ranch have shown remarkable increases in forage yields. Excellent stands of Intermediate wheatgrass and Vernal alfalfa on converted brush land produced two tons of air dry forage per acre - measured by clipping at ground level. When these test plots were fertilized in February with 200 pounds per acre of ammonia sulfate, the yield increased over three tons per acre.

Range improvement on juniper-sage lands looks especially feasible when one thinks of the future demand for beef and the increasing pressures to reduce domestic livestock grazing on public lands. The improved range should be productive for 15 years or more.

Studies at Squaw Butte near Burns, Oregon, on similar vegetation and climate, showed that when juniper-sagebrush was killed with 2-4-D, the area remained relatively free from brush encroachment for 17 years.

TABLE II

SAMPLE COSTS TO ESTABLISH IMPROVED PASTURE ON JUNIPER-SAGE
BRUSH LAND IN BIG VALLEY AND FALL RIVER VALLEY

Shasta - Lassen

March 1973

Based on a 1,000 acre operation and skilled labor @ \$3.50/hr.

Cash and Labor Costs

<u>First Year</u>	<u>Cost Per Acre</u>
Windrow trees with dozer .4 hour (contract)	\$ 8.80
Chop sagebrush .5 hour	2.53
Disc plow .7 hour	3.89
Remove large rocks and limbs .1 hour	<u>.49</u>
Total	\$15.71
 <u>Second Year</u>	
Disc .5 hour (contract)	6.00
Drill seed .5 hour seed 10 lbs. @70¢ drill & cultipack	<u>10.58</u>
Total	16.58
Total cash costs for 2 years	\$32.29

Overhead Costs for the 2 Years

<u>Taxes</u>	
First year land value @\$10 at \$7 rate	.18
Second year land value @\$100 at \$7 rate	1.75
Miscellaneous cash overhead, interest on operating capital, office, etc.	1.93
Depreciation of equipment	2.84
Interest on land and equipment @ 7%	<u>8.82</u>
Total cost to establish pasture	\$47.81

COSTS TO ESTABLISH DRYLAND PASTURE
ON JUNIPER AND SAGE LAND IN BIG VALLEY

INPUTS

Skilled labor @\$3.50/hr in 1973 and \$5.00/hr in 1981

Cash Costs
60 hp wheel tractor using 2 gal/hr @\$1.20/gal = \$2.40
110 hp crawler using 7 gal/hr @\$1.20/gal = \$8.40

Custom Costs
Rent 60 hp wheel tractor @\$30.00/hr
Rent 110 hp crawler @\$50.00/hr

Seed Costs
10 lb/ac wheatgrass @\$0.70/lb in 1973 and \$1.00/lb in 1981
2 lb/ac alfalfa (included in wheatgrass cost in 1973)
@\$1.75/lb in 1981

Costs for 1973 and 1981

	Hour Requirements	1973(1) Cash Costs	1981(2) Custom Costs	1981(3) Cash Costs
1st Year				
Windrow Trees with Dozer	.4	8.80	20.00	3.36
Chop Sagebrush	.5	2.53	15.00	1.20
Disc Plow	.7	3.89	21.00	1.68
Remove Rocks and Limbs	.2	.49	7.00	.48
2nd Year				
Disc	.5	6.00	15.00	1.20
Drill Seed and Seed Costs	.5	10.58	28.50	14.70
Two years of taxes	-	1.93	8.00	8.00
Total		34.22	114.50	30.62

- 1) cash, labor, taxes, and seed costs.
- 2) custom rates, taxes, and seed costs.
- 3) fuel, labor for rock and limb removal only, taxes, and seed costs.

Net Returns for 1973 and 1981

	1973 Costs	1981 Costs	
	Estimate	High Estimate	Low Estimate
Interest @7% for 8 years	34.22	114.50	30.62
Interest cost per year	59.81		
Production of 1.26 AUM @\$10.00	7.48		
Net Return	12.60		
	+5.12		
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Interest @13% for 10 years		417.21	111.57
Interest cost per year		41.72	11.16
Production of 1.26 AUM @\$20.00		25.42	25.42
Net Return		-16.30	+14.26