

INCREASING FORAGE ON SAGEBRUSH LAND



Dense stand of forage plants 3 years after burning. The heavy stand of sagebrush at top of picture is typical of whole area before burning.

PUBLISHED BY
COLORADO AGRICULTURAL COLLEGE
EXTENSION SERVICE F. A. ANDERSON, DIRECTOR
FORT COLLINS

Cooperative Extension Work in Agriculture and Home Economics, Colorado Agricultural College and the United States Department of Agriculture Cooperating. Distributed in Furtherance of the Acts of Congress of May 8 and June 30, 1914.

INCREASING FORAGE ON SAGEBRUSH LAND

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In Colorado there are at least 15 million acres of sagebrush land used for grazing. The forage production on this land is far below what it is capable of producing but it can be increased by destruction of the sagebrush.

It requires 20 or more acres of sagebrush land to furnish grazing for one head of cattle which is not sufficient forage for profitable use as pasture. It is too difficult for livestock to obtain feed on sagebrush land and the land area that is required to produce sufficient forage does not yield adequate returns. At the best such ranges can be utilized by sheep for winter grazing when other forage is lacking or inaccessible because of snow.

The vegetation on sagebrush range consists chiefly of sagebrush with scattered grasses and weeds as secondary plants. Studies have shown that the abundance of sagebrush on extensive areas is the result of overgrazing. The desirable palatable grasses and weeds are crowded out for they cannot compete with the less desirable sagebrush. The result is that sagebrush occupies most of the area. If sagebrush is removed, competition for water and plant foods is reduced. The desirable forage plants come back and increase. The range is then able to produce forage for all classes of livestock.

Sagebrush lands fall into two general types: Short-sagebrush land and tall sagebrush. The short-sage land is occupied by the shallow-rooted grasses as grama grass, June grass, sedge, fescue, muhlenbergia, native blue grasses, wheat grass and a variety of weeds as cinquefoil, stone crop and pussy paws. The growth of these plants is usually too short, however, to furnish much feed. Such range can be utilized to some extent by sheep but when sagebrush is removed the growth of grasses becomes denser and taller with greatly increased production.

On areas covered with tall sagebrush, a large variety of tall-er grasses grow. Due to competition of the sagebrush, however; these grasses are sparse and hard to graze but they will recover rapidly with the removal of sagebrush and protection from overgrazing.

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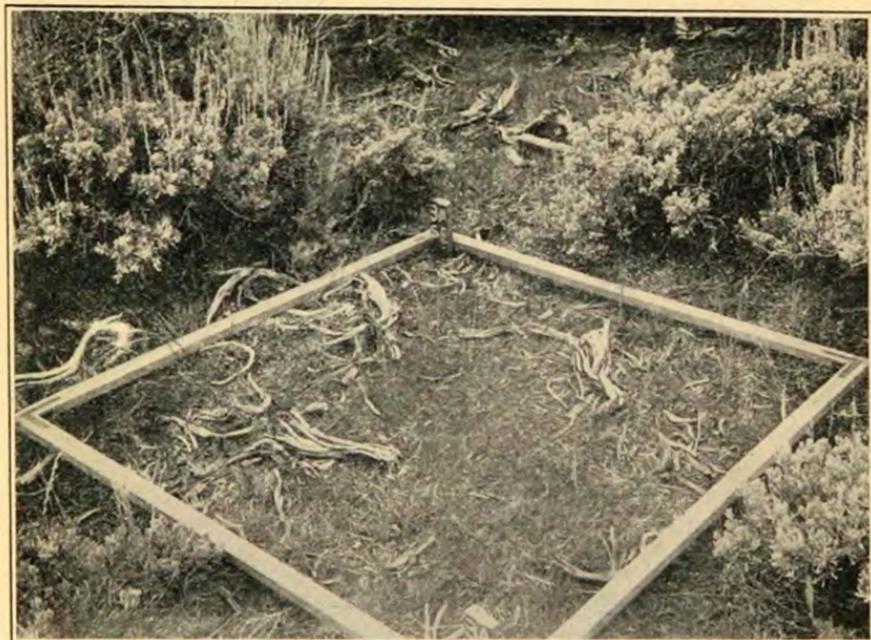


Fig. 1.—Ground cover on sagebrush land before sagebrush was removed. Very few forage plants grow under sagebrush.

Forage Production on Improved Sagebrush Land

Studies have been made to determine the degree of forage improvement in sagebrush land as a result of grubbing and burning off the sagebrush.

In the accompanying table (page 7) the kinds and amounts of the various plants growing on improved land are indicated as compared to those on adjacent unimproved land. The measurements were made on 30 representative measured areas. The desirable forage plants, namely the grasses, are very much more abundant under improved conditions where sagebrush has been removed. The weedier plants or the less desirable and undesirable kinds show a marked decrease in the improved areas. The mat plants are few as are the shorter plants, which means that there is more forage available where sagebrush has been removed. The advantage of protection from rodents is also seen in this table, in the greater abundance of the desirable plants where the areas are protected.

In Figure 1 is shown the ground cover on sagebrush land before the destruction of the sage. The forage plants are short

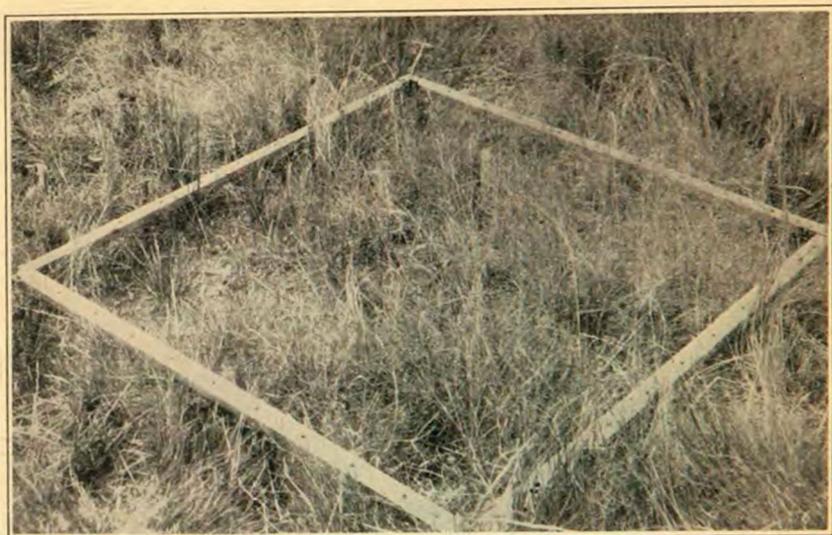


Fig. 2.—Same plot as in Fig. 1 following removal of sagebrush. There is a great increase in available forage for both cattle and sheep.

and scattered and most of the area between the sage is bare ground.

Figure 2 shows the same area 3 years after removal of the sage by burning. The height and density of the grasses increased and the bare ground became covered by a heavy stand of forage. Even the first year after burning, the forage had greatly increased.

The results following the removal of sagebrush are more graphically illustrated in Figure 3. In this graph column A represents the amount of forage produced on unimproved sagebrush land. This was determined by clipping and weighing the forage on measured areas. Column B shows the percentage increase in forage after burning where the areas were not protected from rodents. Column C shows the average percentage increase on land burned and protected from rodents and livestock. Column D shows the average percentage increase on areas where the sage was grubbed and the areas not grazed by livestock.

If comparison is made on the basis of carrying capacity, the results are equally striking showing an increase well over three times the former capacity. While such yields cannot be expected on all lands, the results will justify the time and labor expended.

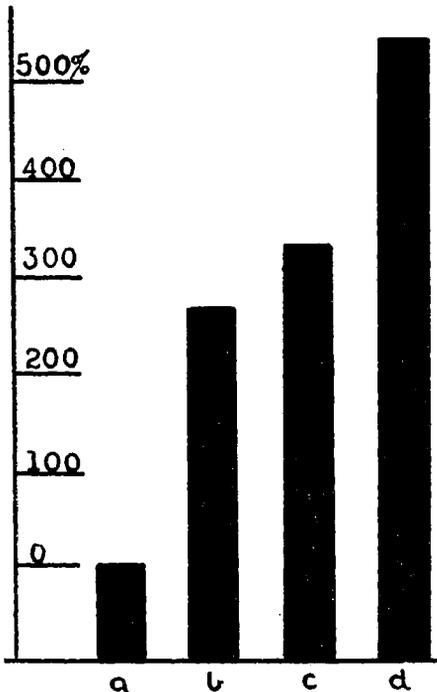


Fig. 3.—A 3-year summary comparing forage yields on sagebrush land and on improved land.

- A—Yield on sagebrush land before improvement.
 B—Yield increase on sagebrush land after burning but exposed to rodents.
 C—Yield increase on sagebrush land after burning but protected from rodents and livestock.
 D—Yield increase after grubbing, not grazed by livestock.

Much of our sagebrush land is capable of supporting forage plants of superior quality and in greater quantity if the competition of the sage is removed.

Removal can be accomplished by burning, grubbing, scraping or by flooding accessible areas with excess irrigation water. At present the most economical method is by burning. Burning can best be done in the fall of the year when the vegetation is dry and will burn readily. Roads, trails, streams and wind can be used to advantage to control the direction of burning. A fast fire is preferred to a slow one as the damage to the grasses will be less. It is suggested that sagebrush land adjacent to a forest should not be burned as the danger of spreading may be great. After the area is cleared, the range should be protected from grazing for at least 1 year and rodents

be eradicated. Deferred and rotation grazing should then be practiced.

Stand and Cover of Forage After Sagebrush Is Removed

SAGEBRUSH AREA UNIMPROVED	AREA CLEARED OF SAGE				
	Area open to ro- dents, closed to livestock.		Area closed to rodents and livestock		
	Stalks, plants or cover	Stalks, Percentage plants difference or cover	Stalks, Percentage plants difference or cover	Stalks, Percentage plants difference or cover	Stalks, Percentage plants difference or cover
Desirable Plants					
Wheat grasses	1620 stalks	5860 stalks	262	7189 stalks	344
Porcupine grasses	87 sq. in.	196 sq. in.	125	178 sq. in.	104
Arid blue grasses	59 sq. in.	61 sq. in.	3	910 sq. in.	1445
Dryland sedge	28 stalks	73 stalks	160	54 stalks	93
Mountain oatgrass	16 stalks	2 stalks	-87	1 stalks	-94
June grass	22 stalks	20 stalks	-9	23 stalks	5
Native fescue	7 sq. in.	0 sq. in.	-700	0 sq. in.	-700
Less Desirable Plants					
Vetch	312 stalks	78 stalks	-75	14 stalks	-95
Knotweed	38 stalks	4 stalks	-89	28 stalks	-26
Short buttonweed	11 stalks	9 stalks	-18	1 stalks	-91
Lupine	59 stalks	47 stalks	-20	24 stalks	-59
Beard tongue	8 stalks	3 stalks	-63	6 stalks	-25
Sulphur flower	160 stalks	10 stalks	-94	0 stalks	-1600
Bluebell	4 stalks	6 stalks	50	4 stalks	-0
Undesirable Plants					
Sagebrush	58 plants	21 plants	-64	45 plants	-22
Short rabbit brush	28 plants	4 plants	-86	18 plants	-36
Tall rabbit brush	0 plants	10 plants	1000	7 plants	700
Pussy paws	632 sq. in.	5 sq. in.	-99	14 sq. in.	-98
Pepper weed	6 plants	4 plants	-33	23 plants	233