

Range improvement:

Easy, low-cost way to improve sagebrush range

By T. E. BEDELL*

IMPROVING rangeland is on almost every western rancher's mind. Some real progress is being made by Modoc County rancher, Lawrence J. Fee, on his Bureau of Land Management cattle allotment. Using a relatively new concept--spraying sagebrush with 2,4-D and then seeding directly into the dead sage with a heavy-duty range drill--Fee established Siberian wheatgrass without the customary practice of preparing a complete seedbed. The beauty of this method is its low cost--\$7.93 per acre.

Time of spraying in Modoc County generally is May 15 to June 15. If ample moisture is available--July 1. You should spray when sage is actively growing, but before soil moisture is depleted below 10 inches soil depth. This can be judged by the time Sandberg bluegrass, a small bunchgrass on most sage ranges, starts to head out, but not after it has lost one-half of its green color.

● Method of application warrants plane or helicopter. With a helicopter, use one-half gallon of 2,4-D ester (2 lb.) and 2-1/2 gallons of diesel oil per acre. On

This was the stand of brush before Fee sprayed it with 2,4-D and then seeded directly into the dead sage with a heavy duty drill.



This is the type of heavy duty range drill used by Lawrence J. Fee, a Modoc County, Calif., cattleman interested in an easy way to rejuvenate his range.

more than 8,000 acres in Modoc National Forest the cost was \$2.35 per acre. With airplane, larger volumes are needed. Use one-half gallon 2,4-D ester (2 lb.) plus one-half gallon diesel oil and 5 to 6 gallons of water per acre.

Time of seeding is either late fall (November to December) or early spring (February to March). Seed should be in the ground early enough to take full advantage of maximum germination conditions, moisture and temperatures. Most of Modoc County private seedings are made in spring, but most of Forest Service seedings are made in late fall.

You don't want fall planted seed to germinate until spring, so some hazard exists when early fall moisture occurs be-

fore freeze-up. Biggest advantage of spring seeding is the weed control achieved through working up a seedbed or, as with the range drill, tearing out cheatgrass and weed seedlings in the furrow.

● Fee's allotment lies on the California-Oregon-Nevada border at 5,000 ft., in an 8-10 inch moisture belt.

Here is the story behind the project. Given a set amount of moisture on a particular soil, each range acre produces so much vegetation. If most of this is sagebrush, grass production suffers. This is exactly what was happening at Fee's. Most of Modoc County and nearby western Nevada receive low moisture, even in good years. Brush gets the lion's share of the vegetation's "staff of life."

After using the relatively new concept, this is the outcome. Fee established Siberian wheatgrass without the customary preparation.



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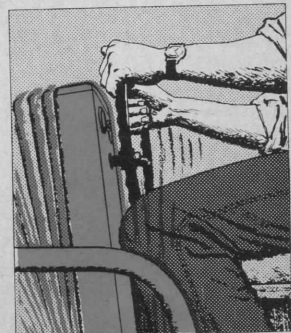
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On a similar range site in Modoc County, research over the past eight years by the University of California Experiment Station and Extension Service shows that seeded wheatgrasses not only produce more forage than native range (mostly cheatgrass and weeds), but that they are a staple source of nutritious forage even in dry years. Even more important is the fact that wheatgrass has a much longer green feed period, starting growth before the cheatgrass and remaining good as dry feed.

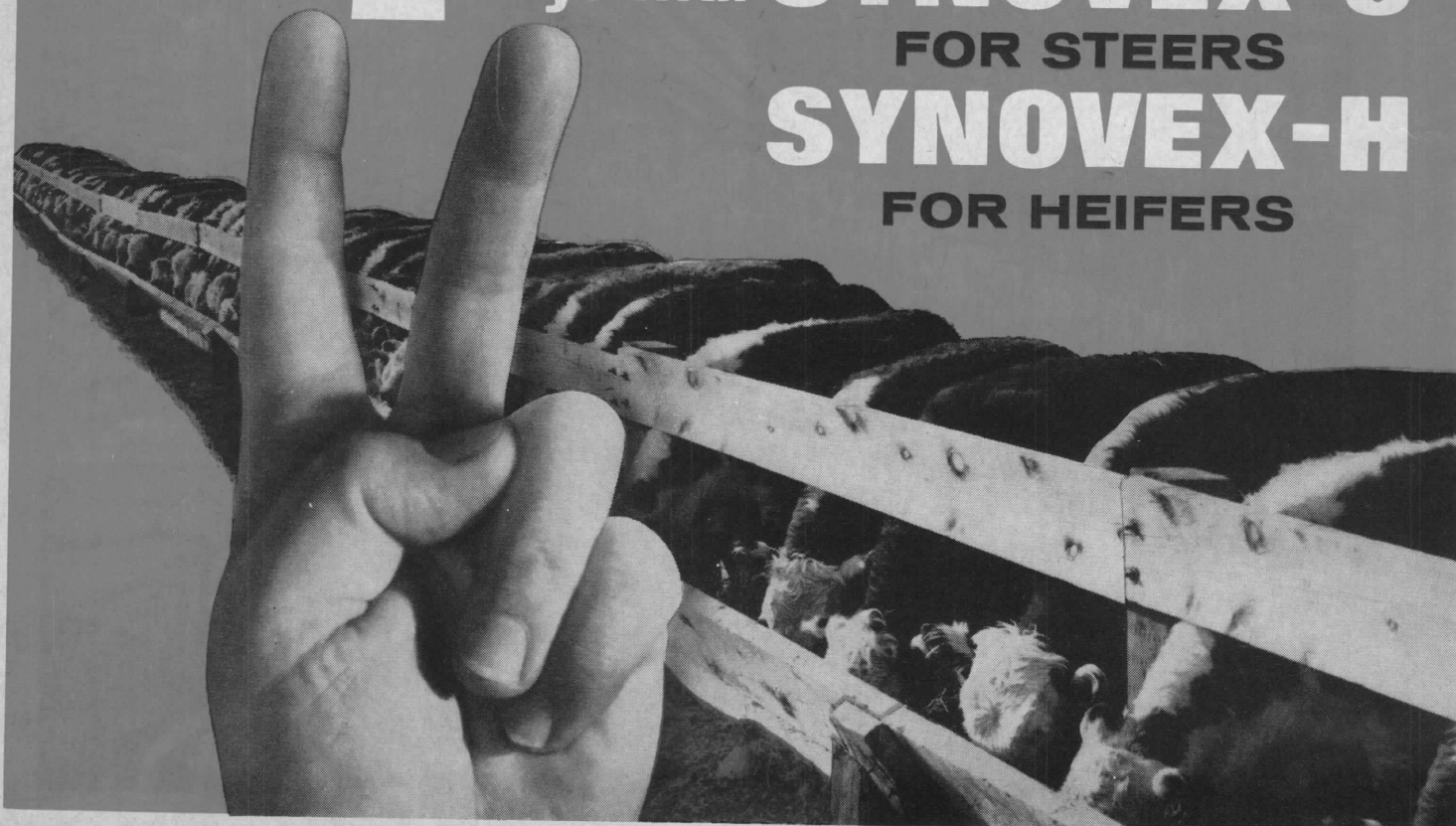
● Cheatgrass can produce lots of feed if it rains, but under low moisture conditions little cheat and weeds result. Not necessarily so with wheatgrass. Because of its deep rooting aspects and ability to go dormant when severe drouth develops, seeded wheatgrasses always produce at least 200 lb. of dry matter per acre in this area. With cheat, production can run as low as 20 lb. per acre on sagebrush range in dry years (5.4 inches).

Here are some figures to illustrate the point: For the last two years cheatgrass yields have been about 10 times as great where brush was removed as compared to yields in the brush. Add to this another increase in production due to seeding wheatgrass, and we get a vast difference between cheatgrass in the brush and seeded grass with no brush. During drouth years, cheatgrass in an area



STUDY GROUP CONTINGENT--This 14-member contingent of the 1963 Livestock Study Tour to New Zealand and Australia were camera corralled in front of the War Memorial Museum in Auckland shortly after their arrival following a 2-day rest stop over in the Fiji Islands. Left to right: Levi Reed, Phoenix, Ariz.; Miss Peggy Reed, Phoenix; Tour leader Lloyd Stevens, Patterson Travel Agency, Sacramento, Calif.; Mr. and Mrs. Regis de Maleissye, 100 Mile House, B. C., Canada; Roy K. Cole, Ira D. Cate, and Mrs. Roy Cole all of Whittier, Calif.; Mr. and Mrs. Clifton Fear, Big Piney, Wyo.; Lewis M. Mathis, El Toro, Calif.; Waldo Parsons, Torrington, Wyo.; Mrs. Levi Reed, Phoenix; Anders V. Mather, West Liberty, Iowa. The group is making a 30-day study tour of livestock ranches and the livestock industry in New Zealand and Australia.

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cleared of sagebrush produced an average of 140 lb. of dry matter per acre compared to 370 lb. per acre for intermediate wheatgrass. Figures also show even more striking differences in beef gains, a 4-fold increase in the seeded area.

● On this same site, University of California research proved that grasses could be established by direct drilling in dead sage. Over a 4-year period, best results came in the three years when cheatgrass production was down. Cheatgrass and weeds are terrific competitors with wheatgrass seedlings for moisture. So the degree of cheat-weed competition determines the success of seeding.

Originally, the Fee spray project was planned as a "release" for increased native grass growth. This means getting rid of the sage competition so the existing forage plants can become more vigorous and productive.

But then the meadow mice showed up. After the mice devoured and destroyed hundreds of tons of hay in the valley areas, they moved out onto ranges and virtually scoured the area for something to eat. Spray killed the sage, and mice the grass.

What were ranchers to do now? Even though the area was rocky and steep, a trial seeding of several acres was made, using a University of California heavy-duty range drill. Crested, Siberian, pubes-

cent, intermediate, and tall wheatgrasses were planted to determine which ones would do best.

Less than 1-1/2 inches of effective rain fell after seeding, but many plants of each

A young farm draftee on his way to training camp asked another draftee, "Do you happen to have a match?"

"Sure," was the second draftee's reply. "But I'm making sure not to give you any!"

"But why?" was the startled query from the first recruit.

"Well," said the second, "we'll start talking, and if we get to talking, we'll wind up as buddies. And if we're buddies, we'll get into the same tent and the same squad; then we'll both volunteer to go for special missions. Maybe we'll even get a dangerous night job; and we'll have to use flashlights. And if the flashlights should happen to go out some dark night in enemy territory, I sure don't want to be stranded with someone who doesn't even carry matches!"

species germinated and became established.

Both rancher Fee and BLM personnel considered the trial seeding successful enough to warrant additional work. Siberian and pubescent wheatgrasses looked

the best. Consequently, 5 lb. of Siberian wheatgrass per acre was drilled on 280 acres, with BLM providing the seed and a 10-ft. range drill, and Fee the tractor and operator.

Results were outstanding. Grass germinated in early spring and made full use of less than 1-1/2 inches of spring moisture. Fall rains gave the plants an additional boost, insuring complete establishment. Dead sage plants hold wind and water erosion to a minimum. Grazing won't occur until late summer so plants will have a chance to become well rooted.

● The \$7.93 per acre cost is broken down to \$3.42 for spraying 2 lb. of 2,4-D ester and \$4.51 for seed, drilling, and a stock water pond. With Fee and BLM dividing costs, the project proved reasonable.

Sagebrush ranges constitute a phenomenal portion of our western range resource. However, each year this brush-infested acreage is whittled down by various improvement practices due, in large part, to results developed through research and demonstration.

Spraying sage with 2,4-D probably accounts for the largest portion of improvement. Costs can run as low as \$2.35 per acre for the aircraft and spray. Even so, for many cheatgrass areas, only part of the potential is reached through spraying. Rocks and terrain limit complete seedbed

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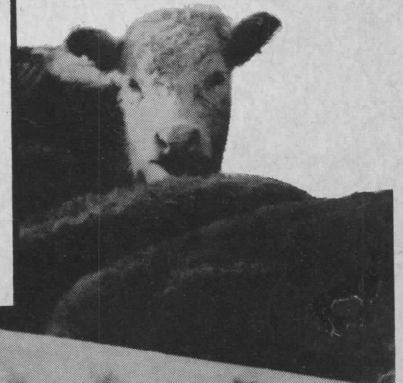
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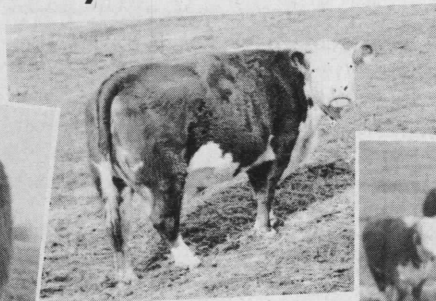
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