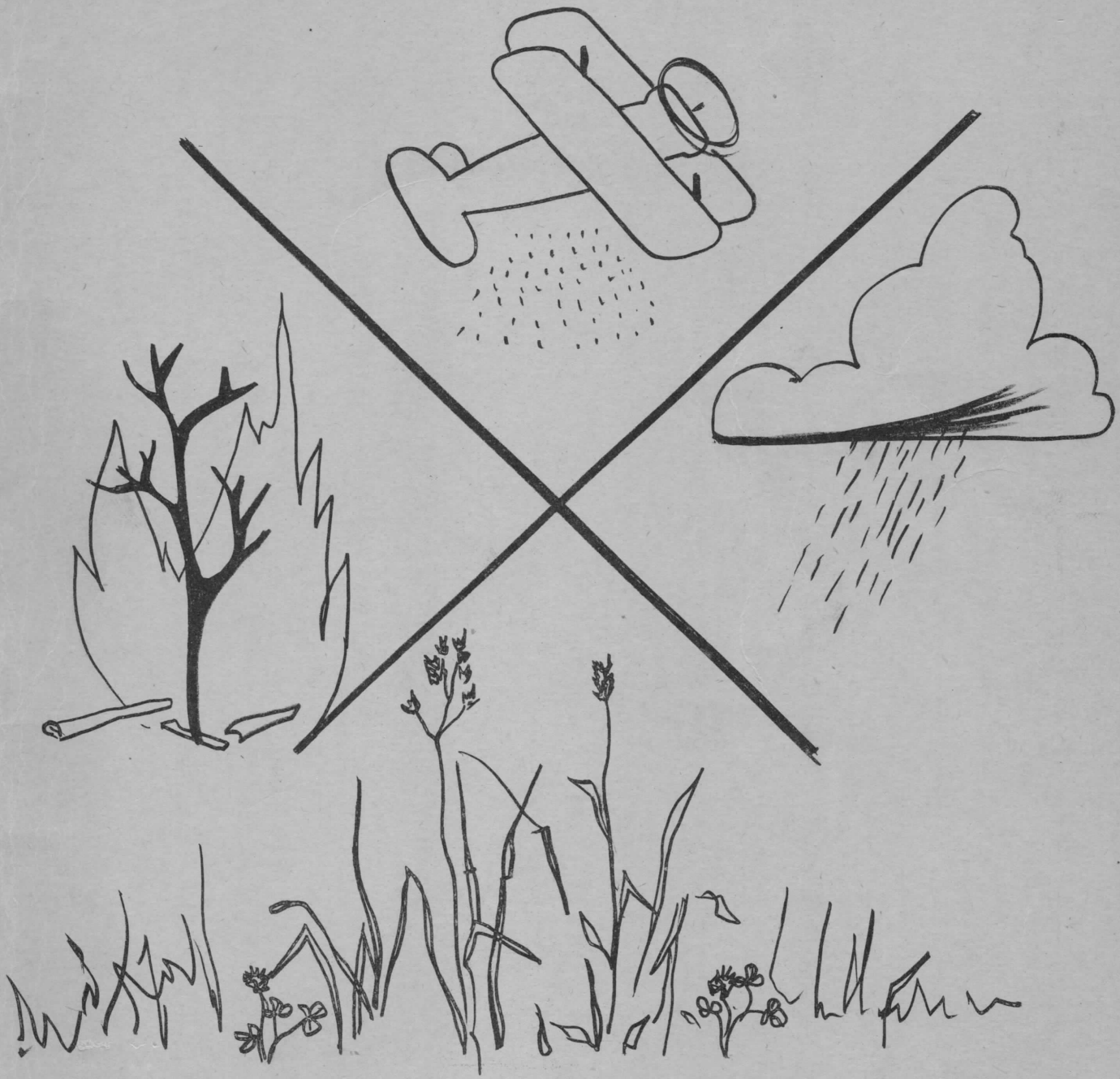
RESEEDING SURVEY



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A survey of range reseeding and range test plot work in Shasta County has just been completed. The results will be found on the following pages.

The reseeding results were drawn from observations made while walking over the control burns. On the larger burns only a portion of the range was observed.

TILDEN BOYLE - 1952, Palo Cedro

The brush on this 100 acre area was scattered and patchy and except for digger pine slash, there was not too much fuel to carry the fire. A fair burn resulted with only spots of ash for seedbed.

Seeded: 9/52

Mixture:

Prairie brome	.8
Burnet	.8
Rose clover	.8
Alta fescue	.6
Harding	.4
Orchard	.4
Perennial ryegrass	.4
Annual ryegrass	.4
Smilo	.2
Intermediate wheat	.2

Observed: 5/18/54

All seeded species except intermediate wheat were found but only a few plants were present. The plants were growing around logs or brush piles. There were some ash spots still bare of vegetation. Burnet was doing the best job of maintaining itself. The stand was poor to fair, only a few scattered plants of rose clover were found. The plants were not growing in patches. This would indicate that it wasn't spreading.

TILDEN BOYLE RANCH, Palo Cedro

Seeded: 1952 on cultivated land

Mixture: Same as above

Observed: 6/22/54

Hardinggrass was the best seeded perennial grass. Annual ryegrass was very dense in certain areas. The rye seemed to be crowding out the perennials in a few spots. Where Burnet was growing in dense clumps of ryegrass it had a very yellow color. Only a few plants of orchardgrass were found. Tall fescue was very scattered. One intermediate wheatgrass plant was found but it sure looked healthy. Only a few plants of rose clover were found. Smilo and prairie brome were not found.

FAY STEVENSON - 1953 (Clough Creek Burn), Palo Cedro

This area of about 2,000 acres north of Highway 44 along Clough Creek burned fair. In spite of excellent burning weather, the sparse grass did not carry the fire into the generally scattered brush. Very little of the brush foliage burned, although much was scorched.

Planted: November 24, 1953 in light burn

Observed: April 20, 1954

Mixture 1: Soft chess, rose clover, Buffel grass

There was a uniform stand of rose clover. Soft chess was found in areas that received the hottest burn. No buffel grass was found.

Mixture 2: Rose, Crimson, Mt. Barker, Tallarook

Crimson clover was very showy and a good uniform stand was observed. A fair stand of rose was evident but the sub clovers did poorly.

Mixture 3: Annual rye, Rose clover

The rose did pretty good but the annual rye did very poorly.

Mixture 4: Soft chess, Annual rye, Rose

A fair stand of soft chess was observed but the rye was very poor. Rose looked very good and a fair stand was evident.

Mixture 5: Harding, Crimson, Rose sub

No Hardinggrass or sub clover was found. A fair stand of rose and crimson was evident.

Mixture 6: Smilo, Harding, Crimson, Rose, Sub

No smilo, Harding, or sub clover plants were found. The rose and crimson did fair.

Mixture 7: Nomad alfalfa

A few plants were found in the ash spots but the plants were not able to survive.

Mixture 8: Orchard

No orchard was found.

CHARLES WINEGAR - 1952, Palo Cedro

The manzanita on this quarter section east of Clough Creek on Highway 44 was walked down with a bulldozer prior to burning. In spite of sparse grass, a good clean up of the down brush resulted. The fire also killed about three-fourths of the brush seedlings that had come in after a 1948 wildfire.

Seeded: 9/52

Mixture:

Prairie brome	.8
Burnet	.8
Rose clover	.8
Alta fescue	.6
Hardinggrass	.4
Perennial rye	.4
Annual rye	.4
Orchardgrass	.4
Smilo	.2
Intermediate wheatgrass	.2

Observed: May 12, 1954

Smilo seems to be doing better than the other seeded grasses. The plants appear to be spreading.

The rose clover stand really looks good. The plants are spreading fairly fast. The plants formed a complete cover on good sized areas. Burnet is doing good. The plants are healthy. Burnet may be spreading slowly.

The Hardinggrass stand was poor but the plants that were present were healthy.

Tall fescue plants are present but the stand is very poor.

Orchardgrass plants are scarce.

The ryegrass plants are fairly abundant but the plants are not healthy looking. The growth was poor.

The intermediate wheat and prairie brome plants are very scattered.

Observed: July 9, 1954

All perennial grasses and Burnet were utilized fairly close. The grasshoppers probably ate much of the forage. The rose clover had not been grazed.

The smilo stand was still visible but the plants had been defoliated by grasshoppers and rabbits.

Location: CHARLES WINEGAR

Fertilizer was applied on November 6, 1954. Area was control burned and seeded in 1952. The perennial grasses were just beginning to green at the base when the ferilizers were applied.

The cattle concentrated on the test plots during January and February. There was no visible effects from the fertilizers at this time.

On March 25 there appeared to be slight differences on fertilized and non-fertilized. Possibly the clovers were reacting to the heavy phosphorus treatments.

On May 12 the heavier rates of nitrogen were evident on the grasses but no real striking results were evident. At this time the clovers didn't show much evidence of a phosphorus response.

I think the area was still under the influences of the control burn after effects.

HOLMES - 1953, Redding

The brush on this 180 acres north of the radio tower on Highway 299 E was knocked down before burning. The burn was good, but not complete because of the scattered nature of the brush and lack of continuous grass to carry the fire from bush to bush.

This burn was conducted at night, the line and interior being fired "Simultaneously".

Seeded: 10/53

Demonstration Seedings

Observed: May 10, 1954

The rose clover looked very good. The crimson did fair but the sub clover stand was poor.

The Nomad alfalfa stand was excellent but the plants were small. They were about 2-4 inches high.

Soft chess seemed to do better than annual ryegrass. Soft chess made good growth. It was about 16-20 inches high. The soft chess and rye did poorly in the native vegetation.

Observed: June 4, 1954

No prairie brome was found where it was seeded.

The Nomad alfalfa was still about 4 inches high. The bottom leaves were falling off and the plants didn't look healthy. Rabbits and grasshoppers had been grazing the plants heavily.

Observed: June 14, 1954

On June 14, the annual clovers were all dried. Orchard and Harding were slightly green at the base. Only a few plants of smilo found. The ones that were found on this date were still green. Burnet was green and healthy on this date. The alfalfa plants looked yellow and very unhealthy. The trefoils were still green. Tall fescue looked green and healthy but only a few plants were found. No prairie brome was found.

A good stand of Nomad alfalfa was observed on June 14. The plants were loosing their bottom leaves and in general the plants didn't look healthy. Rabbits and grasshoppers were doing considerable damage.

MIXED SPECIES:

Annual ryegrass and rose clover. The rye did good in the ash spots but not in lightly burned areas. Rose clover did fair in heavy ash and light ash.

Annual ryegrass did good in heavy ash spots. Heavy rabbit use was observed.

Soft chess and rose clover. The soft chess did good in heavy ash and grew fairly well in areas that burned lightly. Only a few plants of rose clover were found.

Soft chess and annual clovers. Soft chess did very good in the ash spots but only fair in the areas of lightly burn. The annual clovers did poorly.

Soft chess and annual ryegrass and rose clover. A good stand of soft chess was observed but the ryegrass and rose clover did poorly.

A few short strips of ammonia sulfate fertilizer was put out at time of planting. There was no evidence of any fertilizer response.

CHARLES SMITH - 1952 (Dry Creek, Bella Vista)

Except for about 150 acres on the west side which was slicked off, the fire on this 2,400 acre area north of Bella Vista did not burn much brush, although most of it was scorched.

Planted: In the fall of 1952

Mixture:

Prairie brome	.8
Burnet	.8
Rose clover	.8
Alta fescue	.6
Hardinggrass	.4
Perennial ryegrass	.4
Annual ryegrass	.4
Orchardgrass	.4
Smilo	.2
Intermediate wheatgrass	.2

Observed: July 22, 1954

Hardinggrass and smilo were doing good in areas where dense brush was burned out. The Hardinggrass probably was doing better than any of the other seeded species. Smilo was growing in fairly large patches. The smilo stand was impressive. All the seeded plants made good growth. The Hardinggrass was about 24-30 inches high.

Orchardgrass was the third best grass that was seeded. The stand was poor but the plants looked good.

Tall fescue was very scattered over the burned.

There was no Burnet, brome, intermediate wheat or ryegrasses found. A few scattered plants of rose clover was present. The rose clover was not growing in patches and this might indicate that it was not spreading to any great extent.

Smilo appeared to be spreading in certain areas.

FRISBE RANCH - 1950, Bella Vista

This burn of 200 acres was accomplished by firing out about a mile and a half of canyon along French Creek southeast of Bella Vista. A good burn resulted because of slope and wind. A good ash seedbed was left on most of the area.

Seeded: 1950

Mixture:

Hardinggrass	1#
Perennial ryegrass	1#
Harlan brome	1#
Burnet	1#
Tall fescue	1/2#
Rose clover	1/2#
Sub clover	1/2#

Observed: June 22, 1954

Harding was the best grass. It was growing in patches where fire was hottest. Two heavily burned north facing hillsides were almost completely covered with Harding. The plants really looked good. Some of them were 3 feet high.

Tall fescue was the second best seeded grass. Some of the plants were 3 feet tall.

Burnet was widely distributed but the plants had been heavily grazed.

Not much rose clover was found, only small patches. It wasn't spreading very fast.

A few patches of sub clover were found but it didn't seem to be spreading very fast. The plants that were found looked healthy.

A few patches of perennial rye were found but the plants didn't look healthy.

Scattered plants of Harlan brome were found.

FRISBE RANCH, Palo Cedro

Seeded: Spring of 1953. Brush piled and burned.

Mixture:

Rose clover
Crimson clover

Observed: May 12, 1954

The rose clover was very impressive in the heavy ash spots. The plants were over a foot high. The stand in between ash spots was fair to good. The crimson clover was impressive a month or two earlier when it was in flower. The stand of crimson was fair to very good in patches.

Some cattle were turned into the field about noon on May 12. The began grazing the heavy stand of rose clover immediately. Several of the animals bloated within a few hours. The stock were removed with the intention of putting them back on the clovers after they dried.

Another field of rose clover and crimson was planted in the fall of 1953. They were fertilized at the time of planting. The stand was fair to very thick in patches. Certain small areas received heavy application of fertilizers. These areas were really spectacular. The growth of filaree' was over two feet high.

BRUNDAGE RANCH, Palo Cedro

Plot was disked December 5, 1953 and the native vegetation was greatly reduced. It was broadcast seeded and fertilized on December 10, 1953.

The plot was observed January 20, 1954 and only a few of the seeded species could be found.

The plot was observed again March 17. A fair stand was visible but the land owner thought that birds ate much of the seeds so a portion of each plot was replanted on March 17.

Plot observed again May 6.

The replanting was not effective. There was no visible response from the clover inoculation. The sub clover straw was not effective in getting a better stand or better plants.

Mixture 1: Annual clovers; rose, crimson, sub.

Rose and crimson made pretty good growth and the stand was fair but the sub clover stand was poor.

The application of 16-20 (300#/acre) was slightly visible on the clovers. Treble super phosphate at the rate of 300#/acre was not effective in getting any better stand or vigor on the clovers.

Mixture 2: Soft chess, rose, crimson, sub clover.

The clovers did fair but the soft chess did poorly. The fertilizer application did not appear to be effective.

FERTILIZATION OF ANNUAL CLOVERS WITH PHOSPHORUS

Location: 1 mile north of Anderson on airport road. Charles Sneed ranch.

Planted: October 6, 1953, on dry, well prepared seedbed on summer fallow. Clovers inoculated night before. Dixie crimson and Mt. Barker sub clovers used.

A good stand of all planted species resulted soon after the first rains. Possible cold damage resulted soon after germination. Stand was only fair after the freeze.

The weed problem was severe during December, January, and February. The hoe was not effective against the weeds. Weed control with spray materials was tried in January and February. The drill row was covered with valley tin

and a general weed killer was used but this material was too strong. The use of diesel fuel was very effective in controlling the young weeds between drill rows.

There was very little growth differences with varying amounts of phosphorus. Our plot had a sand streak down the middle and also some brush had been piled and burned on parts of the plot.

The bur clover looked superior to the other clovers during December, January, but the rose clover looked best during March and April. The crimson and sub clover made good growth. All the species looked fairly healthy.

The heavy weed growth in the drill row made harvesting impossible.

PHIL TEMPLETON RANCH

Test plot area in Sudan grass spring and summer of 1953. Area disked March 12, 1954 and planted to Hardinggrass and Burnet on March 15. The seeds were planted with a Planet Jr. Fertilizers; Amonnia Sulfate (250#/acre) and 16-20 (400#/acre) were applied under the drill row at planting time.

Test plot was observed on July 23, 1954. The Burnet stand was fair to poor and plants were about one inch high. The plants were green and healthy. The rabbits and grasshoppers were grazing the plants heavily.

The Hardinggrass grew to about two inches and then died. The stand was poor.

The spring rains were not sufficient to mature the plants.

LEONARD STAYER RANCH, Airport road

Planted: October 14, 1953 on spring plowed, part drilled, and part broadcast seeded to one row of annual clovers (rose, crimson, sub) and one row perennial grasses, (Harding, orchard, tall fescue).

Germination started about November 12. A fair stand of clovers were observed in early December and a good stand of grasses were evident in early December. The growth was slow during December and January. The broadcast seeding really looked good during February. The plants looked as good as the heavily fertilized and drilled plots.

A good stand was evident during February. At this time the clovers were really showing the effects of the 16-20. The clovers receiving phosphorus alone looked unhealthy. They looked almost as bad as the check plots. The plants were very small but they did manage to put up one or two seed heads per plant.

Orchard, and crimson were very much in seed head by April 23. A few rose clover plants were putting up seed heads.

On June 9, some rabbit damage was noted. The seed heads were cut off about 8-10 inches above ground. The bottom leaves were beginning to dry at the base. At this date the grasshoppers were abundant. On June 17, the grasshoppers had completely defoliated the grasses. Only about half of the original seed heads were still standing on June 17.

All the planted species responded to fertilizer treatments. The 475# of 16-20 per acre was best and as the fertilizer amounts decreased the plant vigor also decreased. The phosphorus alone gave the plants a little kick but not strikingly so. There didn't seem to be any difference between 150# phosphorus and 210# phosphorus per acre.

Coarse lime applied at a rate of two tons broadcast per acre didn't show any difference in fetilized or unfertilized. The treatment of putting half of the lime down 18 inches and half of it on the surface to 20 inches didn't show any visible differences.

The use of trace elements; copper, zinc, and molybdenum didn't show any visible differences. The above materials were mixed with the fertilizers at the time it was applied.

A strip of sub cloven straw applied December 11 didn't show any effects on the clovers.

Narrow strips of tall wheat, nomad alfala, yellow blossom sweet clover and buffel grasses were planting by broadcasting.

During the early part of the growing season a fair stand of tall wheat, nomad alfalfa and sweet clover was observed but during April and May the nomad and sweet clover disappeared. A few plants of tall wheat was still present June 17. The buffel grass never did show.

heavy nitrogen, 60#/acre, the growth was 10-12 inches more than on the check. The application of 150#/acre of 11-48 was weakly evident on grasses. The 300# rate was strongly evident but not as much as the 60# of nitrogen. There was no visible response from the phosphorus applications. The field might have been over fertilized with super phosphate.

About the first of May cattle were turned onto this clover field. The strips having heavy applications of nitrogen were eaten to the ground. The lighter applications of nitrogen were not grazed so closely. The grasses around these strips were not grazed.

The phosphorus treated strips were not grazed so heavily.

E. F. ASHER RANCH, Igo

The brush was bulldozed into piles or windrows. It was burned and seeded in the fall of 1950.

Seeded: 9/50

Mixture:

2# Perennial ryegrass
1# Annual ryegrass
1# Smilo
1# Burnet
1/2# Rose clover

Observed: 4/13/54

Perennial ryegrass appeared to be doing better than the other seeded species. The distribution was good and the plants were very healthy.

This seeding has produced one of the best stands of smilo. The plants are uniformly distributed over the area and there are indications that smilo is increasing. Most of the plants showed fairly heavy grazing use.

A fair stand of Burnet was observed and the plants looked vigorous and healthy. Most of the plants showed heavy grazing use.

Annual ryegrass has almost disappeared.

Rose clover was doing good in scattered patches. The patches were three or four feet in diameter. The patches appeared to be growing larger each year.

GUENTHER RANCH

Test plot area was disked March 4, 1954 and the native vegetation was greatly reduced. Grasses and legumes were planted March 5 with 200# of 16-20 applied under the drill row. The pattern of planting was one row of grasses and one row of legumes. The grasses that were tested were Harding, tall fescue, orchard, smilo, prairie brome, perennial and annual ryegrass, soft chess, and buffel grass. The legumes consisted of nomad alfalfa, caliverde alfalfa, yellow blossom sweet clover, bur clover, rose clover, and sub clover.

Except for rose and crimson clover the rainfall after March 4 was insufficient to mature the seeded species. The grasses grew to about two inches high and died. The stand was good. Rose and crimson clover were able to produce a few seed heads. The other legumes died before making seed.

Mr. Guenther has a practice of piling brush and burning it during the winter and spring. He also has the practices of seeding the ash spots to grasses and legumes. The ash spots that were seeded during the fall and early winter looked as if the grasses and legumes might survive the summer but those that were seeded after March 1, appeared to be dead on July 28. Burnet and Hardinggrass seemed to be the most hardy plants.

Rose clover that was seeded before March 1 was able to produce a few seed heads but those that were planted after March 1, did not make seed.

GRAVES, 1951, Ono

This area of about 500 acres is located at the junction of Duncan Creek and the middle fork of Cottonwood Creek. An excellent clean-up was accomplished because the brush on about half the area had been bulldozed in windrows or crushed. Parts of the area not effectively burned were chamise with very little grass fuel underneath.

Seeded: Spring of 1952.

Mixture:

Orchard
Smilo
Harding
Tall fescue
Rose clover
?

Orchardgrass and Hardinggrass were doing good on the lower and middle slopes. The Harding was probably the number one grass. These grasses were found only

in areas that were burned fairly hot. There were no seeded species found in areas that were not previously occupied by heavy brush.

Smilo was the number one plant on the higher hillsides. The soil was shallow and bare in many small areas. A few tall fescue and Hardinggrass plants were found on the higher slopes but smilo plants were much more numerous.

Rose clover was scarce. Only a few scattered plants were found.

Burnet plants were very scattered.

A native brome, probably mountain brome, was doing very good in patches. The patches were impressive.

No ryegrasses were found.

BURCH, 1953, Platina

One-hundred and fifty acres of brush and grass at Platina were burned early in August during average burning weather. The combination of heavy dry fuel and favorable slope resulted in one of the most effective burns of 1953. Most of the brush was "slicked off" except for that fired at night after an escape had been controlled. Conditions for seeding were excellent.

Seeded: 10/254

Experimental seeding with several species.

Crimson clover looked very impressive. The crimson looked good when seeded in the native annuals.

Prairie brome did poorly with the annual mixture. Sub clover looked fair. The stand wasn't good. The rose clover stand was better than the other seeded annual clovers.

Annual ryegrass was very impressive. The stand was excellent.

A mixture containing old seed of alfalfas, clovers and grasses was seeded on about three acres. The alfalfa was doing good. The plants were about 6 inches high and looked quite healthy. The sweet clovers looked good. The wheatgrass was beginning to make good growth. The plants were about 6-8 inches high.

The cereals were scattered but they sure made excellent growth. They were 3-4 feet high.

HUNT, 1952 (Clover Creek Burn), Oak Run, Millville.

This large 5,000 acre burn had extensive open grass areas and patchy brush. With generally adequate grass fuel, a "better than fair" burn was obtained.

Mixture:

Prairie brome	.8
Burnet	.8
Rose clover	.8
Alta fescue	.6
Hardinggrass	.4
Orchardgrass	.4
Annual ryegrass	.4
Perennial ryegrass	.4
Smilo	.2
Intermediate wheatgrass	.2

Seeded: In fall of 1952 on control burn.

Observed: June 22, 1954

Ryegrasses were the best stand and they made good growth.

Harding was probably second. The Harding was 3 feet or more high. Good stand in spots.

Smilo was fairly well distributed. The plants had formed large bunches and they were 3 feet or more high. The smilo was growing fairly abundant into the native grasses.

Intermediate wheatgrasses looked very impressive. The stand was fair and the plants were more than 3 feet high. They were the greenest grass found. Tall fescue looked fair, the stand was pretty good and the plants looked good.

Prairie brome was good in patches. The patches were not abundant. The plants were about 2 feet high.

There was a fair stand of Burnet. Rose clover was confined to scattered small patches. The spreading appeared to be slow. The plants made lots of growth.

The native grasses also made lots of growth. None of the plants looked grazed off. The soil looked good.

STRAWN, 1952, Oak Run

This 400 acre burn lies below Bullskin Ridge near Oak Run. The fire, with a good wind behind it, took out about a third of the dense manzanita patches. Most of the remaining manzanita was scorched and has subsequently died.

Seeded: 9/52

Mixture:

Praire brome	.8
Burnet	.8
Rose clover	.8
Alta fescue	.6
Harding	.4
Orchard	.4
Perennial ryegrass	.4
Annual ryegrass	.4
Smilo	.2
Intermediate wheat	.2

Observed: 5/17/54

Hardinggrass appeared to be doing better than the other seeded grasses. The stand was fair and the growth was about 16 inches.

There was a good stand of ryegrass but the plants had been grazed fairly close, only a few seed heads were found.

Tall fescue looked pretty good. Most of the plants were able to put up a seed talk. The prairie brome stand was poor. A few large plants were found in brush piles.

Fairly large patches of smilo were found. It appeared to be spreading.

There was a fair stand of Burnet but most of the plants were small.

Rose clover was very scattered. It didn't show any signs of spreading.

STRAWN, 1953, Oak Run

This fire on 400 acres near Oak Run did a fair job in killing brush by scorching and in cleaning up trash and litter.

Seeded: 9/53

Mixture:

Prairie brome	.8
Rose clover	.8
Burnet	.8
Tall fescue	.6
Perennial rye	.4
Annual rye	.4
Orchard	.5
Harding	.5
Smilo	.2

Observed: July 15, 1953

Hardinggrass was doing better than the other seeded grasses. The stand was fair but the growth was not good. The plants put up a weak seed stalk and very little foliage.

The ryegrasses were the second best grasses. The stand was fair, the growth was poor.

The orchardgrass stand was fair but plants were small, only about 4-6 inches. Only a few seed heads were found.

There was a poor stand of tall fescue. The plants were about 4-6 inches high and were very green. A few plants of smilo and prairie brome were found.

The Burnet stand was poor and the plants did not look healthy.

Rose clover was very scarce. The plants were small.

The soil was shallow and probably was low in fertility. The plants might have suffered for water during May.

KIBLER, 1952, (Dry Creek, Happy Valley)

The major part of this 6,000 acre area near Happy Valley was not effectively burned. The poor grass cover did not effectively carry the fire through the brush. The southern part of the area along the Gas Point Road burned better because of favorable wind in the afternoon and because of piled brush from the power line right-of-way clearing.

Seeded: September 24, 1952

Observed: June 10, 1954

Mixture 1:

Annual ryegrass
Perennial rye
Harding.

Burnet
Prairie brome
Harlan brome
Smooth brome
Rose clover
Alfalfa

Only a few plants of perennial ryegrass were found. A scattered stand of Harding and Burnet was observed. Harding was found only in heavy ash spots. Burnet was doing fair in the native vegetation.

Harding was the best grass. All perennials were very heavily grazed.

Mixture 2:

Annual rye
Perennial rye
Harding
Smilo
Prairie brome
Harlan brome
Burnet
Tall fescue

A poor stand of tall fescue was observed. The plants that have survived were primarily in protected places and they look healthy.

Smilo was looking good but only a few plants were found growing outside of protected areas.

Harlan brome was found in patches. The plants that were found looked good. Perennial rye was still holding on but not doing well. Harding was holding on but it was heavily grazed. Burnet had the best stand, the plants looked good but they were grazed fairly heavy.

McGLADREY, Oak Run

Good burning conditions and lots of fuel produced a hot fire which did a very good job of taking out brush and cleaning up trash and litter on this 740 acre burn near Oak Run.

Seeded: 9/53

Mixture:

Prairie brome	.8
Burnet	.8
Rose clover	.8

Tall fescue	.6
Orchard	.5
Harding	.5
Perennial ryegrass	.4
Annual ryegrass	.4
Smilo	.2

Observed: May 21, 1954

Orchardgrass was doing better than the other seeded grasses. Orchard really looked impressive. The stand was good.

The ryegrass was the second best of the seeded grasses.

The Hardinggrass stand was fair. The plants were slow in maturing.

A few smilo plants were found around burned logs. The plants seem to need protection in order to survive.

The prairie brome stand was poor. The plants that were present looked good.

Tall fescue plants were not present in large numbers.

The rose clover plants were scarce. Burnet plants were very scattered.

McGREW, 1953, Round Mountain

This proposed controlled burn area was burned over by the "Water Box" wildfire on Highway 299-E. The fire cleaned up most of the dense brush leaving a very good seedbed.

Seeded: 10/20/53

Demonstration seedings.

Observed: 5/17/54

Perennial and annual ryegrass looked very good. Meadow foxtails were about 2 feet high and doing good. Soft chess formed a dense cover which was about 16 inches high.

Ranger alfalfa was about 10 inches high and it didn't look healthy. The leaves were yellow and dropping off. An insect that looked like the mealybug was attacking the leaves. The nomad alfalfa had the same appearance. The plants were 6-8 inches high. There was a good stand of nomad.

Soft chess was planted on a north hillside and an excellent stand resulted. The plants looked very healthy and they made about 16 inches growth.

Sweet clover was about 4-6 inches high and had a dark green color. Only a few plants of sub and crimson clover found.

Two orchardgrass strips were seeded across the burn. The seeding was done heavy because of old seed. Most of the seeds came up so a very thick stand of orchard resulted. The plants were about 12 inches high. Cattle and deer started grazing this soon after May 17 and by June 9 the plants had been closely grazed. Very few seed heads were showing.

SPRING SEEDING ON McGREW RANCH.

Planted in the ash March 25, 1954. (10' X 100') plots--seed mixtures were left over from McArthur seedings.

Mixture 1:

Intermediate wheatgrass	1/4#
Orchardgrass	1/4#
Perennial ryegrass	1/2#
Alta fescue	1/2#
Hardinggrass	1/2#

A fair stand of all the species was present. The plants were about 6" high and ryegrass was in head.

Mixture 2:

Mountain brome	1/2#
Smooth brome	1/2#
Crested wheat	1/2#
Tall wheat	1/4#
Pubescent wheat	1/4#

The stand was good. The plants were about 6-8" high.

Mixture 3:

Intermediate wheat	1/2#
Hardinggrass	1#
Ranger alfalfa	1/2#

There was a good stand of alfalfa. It was about 6 inches high and many yellow leaves. Intermediate wheat and Hardinggrass was about 6 inches high. The stand was fair.

Mixture 4:

Intermediate wheat	1/4#
Hardinggrass	1/2#
Crested wheat	1/4#
Common alfalfa	1/2#

The grass stand was fair and was about 6-8 inches high. The alfalfa stand was good but the leaves showed much yellow color.

Mixture 5:

Intermediate wheat	1/2#
Harding	3/4#
Rose clover	1/2#
Sevelra	1/4#

Fair stand of grasses was observed and they were about 8 inches high. There was a good stand of rose clover. The plants were about 10 inches across and were in seed head. There was a fair stand of alfalfa. Yellow colored leaves were numerous.

Mixture 6:

Intermediate wheat	1/2#
Perennial rye	3/4#
Harding	1/4#
Ladak alfalfa	1/2#

The grass stand was good but the alfalfa stand was poor.

Mixture 7:

Intermediate wheat	3/4#
Perennial rye	3/4#
Nomad	1/2#

Very good stand of ryegrass resulted. The plants were 12-16 inches high. The nomad showed much of the leaf discoloration. The plants were 8-10 inches high.

Mixture 8:

Intermediate wheat	1/2#
Perennial ryegrass	3/4#
Caliverde alfalfa	1/2#
Hardinggrass	1/4#

The grass stand was fair. The alfalfa is also affected by the yellow leaves.

Mixture 9:

Smooth brome	1 1/4 #
Ladak alfalfa	3/4 #

The smooth brome stand was fair. The plants were about 6 inches high. The alfalfa stand was good. The plants were about 6 inches high and had many yellow leaves.

Mixture 10:

Annual ryegrass	1/2#
Rose clover	1/2#
Bur clover	1/2#
Soft chess	1/2#

Ryegrass was in seed head. The plants were about 12 inches high. Soft chess was also in seed head and was about 8 inches high. The bur clover stand was fair. The plants were about 6 inches across. Rose clover did good.

Mixture 11:

Rose clover	1/2#
Crimson clover	1/2#
Mt. Barker sub	1/2#
Tallarook sub	1/2#
Bur clover	1/2#

The mixed clovers looked very good. Rose clover looked the best.

WILLIAMS RANCH, 1951 Near Platina

This chamise area of about 225 acres was controlled burned in 1951. Some of the chamise was walked down with a dozer before burning. The mashed brush burned completely, but the burn on the remaining area was spotty. The burned areas were seeded in the fall of 1951. Seed mixtures varied, but included the following species:

Hardinggrass
Smilo
Perennial ryegrass
Annual ryegrass
Burnet
Rose clover
Alfalfa

Observations during the spring of 1954 showed:

Harding and smilo were the most successful of the grasses tested. Although quite sparse, the plants were generally vigorous. Smilo seems to have increased. On the best sites harding showed up better than the smilo, while on poorer, rockier slopes, smilo did better.

Perennial rye produced the best stand, but the plants were small, without much leafage, and did not produce much seed. Annual rye did not last.

Burnet, rose clover, and alfalfa did not show up well on this poor chamise soil.

In addition to the above species, plot seedings have shown that tall meadow oats and filaree have done fairly well. Seedings of nomad alfalfa have produced only sparse stands, but a few of the plants look healthy.

BILL BRABY, 1953, Round Mountain

Area where experimental plots were located, burned very clean.

Planted: October 20, 1953 in burned area. Demonstration seeding.

Plants observed January 24 and a good stand was evident. The plants were about 2 inches high.

Observation: May 17, 1954

Tall fescue looked very good but had been grazed fairly heavy. Generally the plants were about 6 inches high.

The wheatgrasses were slow in getting started. The plants were about 4 inches high. Prairie brome looked fair but stand wasn't good. The plants were about 12 inches high.

Perennial and annual rye looked very good. The growth was about 16 inches and showed heavy use.

The Harding looked healthy with about 7 inches growth. The stand was fair.

Smilo was 9 inches high and the stand was fair to good.

No tall oatgrass was found.

The sub clover looked good and the plants were beginning to spread rapidly.

The crimson clover was very showy but little foliage was produced. A good stand was observed.

Rose clover looked very good. The stand was good.

Orchard grass looked very impressive. The stand was good and growth abundant.

A few healthy plants of meadow foxtail were found. The plants really looked good. They were about 28 inches high.

HARRY RUTHERFORD, 1953, Round Mountain

About 80 acres burned very hot and clean. Foliage from large trees was consumed by the fire.

Seeded: 9/53

Mixture:

Prairie brome	.8
Burnet	.8
Rose clover	.8
Tall fescue	.6
Orchard	.5
Harding	.5
Perennial rye	.4
Annual rye	.4
Smilo	.2

Observed: May 21, 1954

Orchardgrass was the outstanding grass. The stand was excellent and the plants looked good. They were about 16-24 inches high.

Hardinggrass was slow to get started. The stand was fair.

The ryegrass looked pretty good. Tall fescue did fair but the stand was poor.

The Burnet stand was poor. Prairie brome plants were very scattered. Rose clover plants were uniformily distributed over the area.

MORELLI, 1953, Whitmore

This 400 acre area north of South Cow Creek near Whitmore burned poorly due to insufficient ground fuel.

Seeded: 10/53 on escape burn.

Demonstration seeding 20' X 50'.

Observed: May 13, 1954

Mixture 1:

Rose clover	2#
Crimson clover	1#
Mt. Barker sub	1#
Tallarook sub	1#

Not over a half dozen plants were found. Cold weather was probably the damaging agent.

Mixture 2:

Hardinggrass
Annual clovers

There was a fair stand of Harding but the annual clovers were very scarce.

Mixture 3:

Smilo
Annual clovers

There were a few plants of smilo. The clovers did very poorly.

Mixture 4:

Annual ryegrass
Perennial ryegrass
Rose clover

The stand of ryegrasses was fair and the plants looked pretty good. The rose clover did fair.

Mixture 5:

Soft chess
Rose clover

The soft chess stand was good. The plants made good growth. Just a few plants of rose clover was found.

Mixture 6:

Soft chess
Annual ryegrass
Rose clover

The soft chess stand was good but the ryegrass and rose clover did poorly.

Orchardgrass made good growth and the stand was excellent. Orchard was impressive.

HARTMAN, 1953, Whitmore

These two areas totalling 400 acres lie between Mill Creek and South Cow Creek. Both areas burned poorly because there was not enough ground fuel to carry the fires through the brush. After the fires, some brush was piled and burned.

Seeded: 9/53

Observed: 5/13/54

Mixture:

Perennial ryegrass
Annual ryegrass
Alfalfa
Clovers
?

An excellent stand of ryegrasses resulted. The plants were over 2 feet high and dark green. It was very impressive.

The clovers and alfalfas were present in large numbers but the plants were very weak. They were about 1-2 inches high. The competition from the rye grasses seemed very severe.

JOHNSON, 1953, Whitmore

Most of the brush on this 500 acres south of Highway 44 near Midway was railed prior to burning. This operation did not effectively flatten all the brush but, while not complete, a good burn resulted.

Seeded: 9/53

Mixture:

Prairie brome	.8
Rose clover	.8
Burnet	.8
Tall fescue	.6
Orchard	.5
Harding	.5
Annual rye	.4
Perennial rye	.4
Smilo	.2

Observed: 5/13/54

Orchardgrass was the outstanding grass. It really looked good. The plants were over two feet high.

The Hardinggrass stand was fair. The growth was pretty good. The Burnet stand was fair. The ryegrasses were fair. Tall fescue was fair. Rose clover, smilo and prairie brome did poorly.

DARRAH, 1951, Oak Run

This 300 acre burn lies between the Oak Run Road and Oak Run Creek below the Darrah house. Some of the brush on top was bulldozed before burning. Good burning conditions and plenty of fuel resulted in an exceptionally clean burn and good ash seedbed.

Seeded: 9/51

Mixture:

Orchard	1#
Prairie brome	1#
Tall fescue	3/4#
Harding	1/2#
Perennial rye	1/2#
Annual rye	1/2#
Smilo	1/4#
Rose clover	1/2#
Burnet	1/4#

Observed: 6/22/54

Orchardgrass was the best looking grass that was seeded. The plants were about two feet high. The stand was very good and the plants looked vigorous

and healthy.

Hardinggrass was the second best grass. The stand was fair but the plants were strong and healthy.

Alta fescue was the third best grass. The stand was about the same as Hardinggrass. The plants made good growth.

There was a good stand of ryegrasses but the plants were small and didn't look healthy.

Smilo appeared to be doing good where it had been protected by brush or logs. Very few plants were found growing away from such areas.

Burnet was uniformly distributed over the burn and most of the plants showed some grazing use.

The rose clover was growing in small patches. These small patches were numerous and were spreading fairly rapidly.

The ground cover from the seeded species was very thorough. The brush seedlings appeared to be killed from the competition. This seeding was one of the most successful in the county.

BLUE MT., 1950, Whitmore

The largest controlled burn in Shasta County. This area of 9,700 acres was a natural burning unit. The burn on about half of the area was excellent; the fire was very hot and much of the brush was cleaned out. The northern part of the area did not burn too good because of more moist conditions and because it was necessary to start firing early in the morning for safety.

Seeded: Fall, 1950

Mixture:

Perennial ryegrass	2#
Annual ryegrass	1#
Smilo	1#
Burnet	1#
Rose clover	1/2#

Observed: 5/18/54

On the north side of the mountain perennial ryegrass appeared to be doing better than the other seeded species. The stand was good and the plants really looked good.

The smilo seemed to be increasing and the clumps were getting large. Some of the plants were three feet tall.

Burnet was doing good. The plants were distributed uniformly over the area. The rose clover stand was poot. There were not many patches found.

On the south slope the ryegrasses were beginning to look unhealthy. The plants are getting smaller each year. The smilo is good in a few areas. The plants are very well established and it appears to be increasing.

The Burnet stand is fair and the plants look healthy.

The rose clover patches seem to be more numerous on the south side of the mountain.

The University of California at Davis has been doing range investigations on Blue Mountain and the following tables from their progress reports might be of interest:

Investment, dollars per acre 1950

	Rancher	PMA	CDF	Total
Burning	.29		.20	.49
Fence repair	.11			.11
Seed	.45	1.80		2.25
Seeding	.30			.30
	1.15	1.80	.20	3.15

Investment Total:

Summary of Total Costs

Forage used as fuel 150 A.U.M. at 2.50	$ 375.00
Burned and fence repaired 3500 acres at $ .60	2100.00
Seed and seeding 1000 acres at 2.55	2550.00
Experimental seeding 50 acres at $3.75	188.00
1951 Seed and Seeding on about 75 acres	300.00
Total Cost	$5513.00

Returns:

Feed Utilized

	1951-1952	1952-1953	1951-1953
A.U.M. after burn	1139	1331	2360
A.U.M. before burn	300	300	600
A.U. M increase	839	921	1760

Weight Gains

The cattle were weighed into the pastures in the fall of 1952 and weighed out in the spring of 1953. These weights show a net beef produced during the grazing season of 39,277 pounds. Separated by class these weight gains are as shown in Table I.

Table I
Livestock Gains by Class

	No.	Avg. Wt. in	Avg. Wt. out	Avg. Gain	Total Gain	Gain lbs. per day
Mature Cows	88)					
	)148					
Yearling Heifers	60)	779	831	52	7696	0.272
Weaner Calves	80	383	494	111	8880	0.919
Yearling Steers	29	636	793	177	5133	1.321
Calves	96	---	183	183	17568	--

The cows and yearling heifers, though weighed into the pasture separatly, were not separated on weighing out. Thus the average of 52 pounds gain is somewhat artificial. Six of the mature cows did not calve and fourteen of th yearling heifers did calve. The cows and yearling heifers which did not calve undoubtedly made greater gains than the above average shows, while those producing calves (96) made lesser gains than the average shows.

The ranch owner estimated that cows wintered in this range before the control burn lost on the average 50 to 100 pounds during the winter grazing period, and calves produced were much lighter, and death losses far greater.

The weaner calves gained 9.9 pounds per day, and the yearling steers gained 1.3 pounds per day during the grazing period on this range. The production of 1221 A.U.M. grazing with a net beef gain of 39,277 pounds is rather remarkable

for the season of 1952-1953 on a range which before the control burn and reseeding was so over---crowded with brush that it produced only a miserable existence for 25 percent of the livestock it now carries.

TRUETT, 1947, Shingletown

Mr. Truett has continuously burned small areas during the non-permit season. The brush on this area (above Truett's house north of Highway 44) was piled in places and burned during October after a little sprinkle.

Seeded: February 20, 1948

Observed: June 21, 1954. Fenced plot.

Harding was doing good. Only a scattered stand was present but it might be spreading slowly.

The Burnet stand was good. The plants look good but had been grazed by deer or rabbits. Burnet looked as if it were slowly spreading from seed. Perennial ryegrass was still present but it was making poor growth.

A few healthy plants of Ladak alfalfa were observed but there were no young plants found.

THATCHER, 1951, Big Wheels--Viola

This 40 acre area at Dersch Meadows was a part of the 1945 Latour fire. Prior to controlled burning, snags were pushed down and piled and other material bunched to faciliate burning. An excellent clean-up resulted.

Seeded: Fall of 1951 on control burn. No grazing until fall of 1952.

Mixture:

Orchardgrass
Tall fescue
Hardinggrass
Mountain brome
Smilo
Perennial ryegrass
Burnet
Rose clover

Observed: June 21, 1954

A very good stand of orchardgrass was observed. The plants were very healthy and green. They were about 2-3 feet high.

Tall fescue was the second best plant. The stand of tall fescue was far short of that of orchard.

Mountain brome was the third best plant. The stand was only fair but the growth was good.

Burnet was fair but the plant had been heavily grazed by deer.

Perennial rye didn't look healthy and the stand was poor. No rose clover was found. Only two Hardinggrass plants were found. No smilo found.

JUNGE, 1953, Fern

These two areas totalling 920 acres and flanking the Fern Road near Fern burned poorly. Fuel conditions were those of sparse grass and dense to scattered high brush. Small patches here and there were burned out but the fire was generally in-effective.

Seeded: 9/53

Mixture:

Prairie brome	.8
Burnet	.8
Rose clover	.8
Tall fescue	.6
Harding	.5
Orchard	.5
Perennial rye	.4
Annual rye	.4
Smilo	.2

Observed: May 4, 1954

Orchardgrass was doing better than the other seeded grasses.

Tall fescue and rye looked good. The Hardingrass stand was poor. Smilo plants were scarce.

Rose clover and Burnet were doing very well. Prairie brome plants were scarce.

JUNGE, 1952, Whitmore

The dense brush patches on this 350 acre area south of Fern burned fairly good. About half the brush was killed; 10% being burned clean. The grass cover was fair, and burning conditions were good. A south wind during the afternoon did most of the work.

Seeded: 9/52

Mixture:

Prairie brome	.8
Burnet	.8
Rose clover	.8
Alta fescue	.6
Hardinggrass	.4
Orchardgrass	.4
Perennial rye	.4
Annual rye	.4
Smilo	.2
Intermediate wheatgrass	.2

Observed: May 4, 1954

Orchardgrass was the outstanding grass. The stand was good and the plants made good growth.

The ryegrass looked good. The plants made good growth.

Tall fescue was doing fair. The stand was fair.

The Harding and smilo stand were poor.

A few brome and intermediate wheat grass plants were found but they were very scattered.

The rose clover plants were scarce. Rose clover did not appear to be spreading very fast.

The Burnet stand was fair. The plants had been grazed fairly close.

JUNGE RANCH

Seeded: March 5, 1954. Seeding rate about 12 lbs. per acre; Fetilizer rate 200# ammonia sulfate per acre; 40 acres planted, and fertilized by airplane. Area cleared by bulldozer.

Mixture:

Orchard	2 1/2 #
Alta fescue	2 1/2 #
Hardinggrass	2 1/2 #
Perennial ryegrass	1 #
Annual ryegrass	1 #
Rose clover	1 #
Crested wheatgrass	3/4 #
Intermediate wheatgrass	3/4 #

Observed: August 15, 1954.

The orchardgrass stand was very good. The plants were about three inches high. The plants looked as if they might be dormant.

The ryegrasses were the second best. Weak seed heads were produced and very little tillering was evident.

Hardinggrass was probably third best. The plants were about five inches high and they did not look vigorous.

Tall fescue had a healthy appearance but the plants were not numerous.

The wheatgrasses did poorly. The rose clover made fair growth and fair crop of seeds were produced.

Clover Seeding:

Seeded and fertilized March 5, 1954 by airplane. Seeding rate about 12# per acre; 325 # superphosphate applied per acre; 30 acres planted.

Mixture:

Crimson	4#
Rose clover	4#
Mt. Barker sub	2#
Tallarook sub	2#

Observed: August 15, 1954.

Rose clover did fair. A few seed heads were produced on small plants.

A scattered stand of sub clover was observed and a few seed heads were produced on each plant.

The crimson clover did poorly. The seed crop produced may be sufficient to get a good stand this next growing season.

YARBOROUGH RANCH, Cottonwood

Plot disked December 11, 1953 and the native annuals were almost completely killed. The plot was broadcast seeded and fertilized December 19, 1953. Portions of the plots were inoculated. The seeds lay on top of the ground about three weeks before germinating.

The plot was observed January 10 and a few seedlings of grasses and clovers were found.

The plot was observed again on March 17. A fair stand of clovers were present but the native competition was beginning to be severe. A fair stand of Harding was found but the other seeded grasses were scarce.

The 16-20 (200#/acre) was evident on the native annuals but it was not a striking response. The 11-48 (200#/acre) was barely evident. The treble super phosphate, 200#/acre, was not visible on clovers or grasses. A lime strip 4 feet wide, 2 ton/acre was not evident on grasses or clovers. Half of the lime strip was over fertilized with 16/20 and there was no lime response.

On March 17 a portion of each plot was replanted to the original mixture. On April 13 the stand did not look any better.

Sub clover straw was used on parts of the plots. No visible differences were noted where the straw was used. The test plot was observed again on July 30 and none of the perennial grasses were found.

WILCOX RANCH, Balls Ferry

Observed: February 10, 1954

The clovers looked very good. A good stand was developing all over the plot.

Hardinggrass was beginning to show good basal growth.

A few plants of smilo had survived in the area seeded by the range planter.

FERTILIZER PLOT

Applied: February 10, 1954

The 16-20 (200#/acre) and 11-48 (200#/acre) were evident but the phosphorous (200#/acre) was not evident.

April 9.

The 16-20 was still evident but nothing to get excited about. The 11-48 was evident but fairly weak. The phosphorous was not evident.

May 10.

The 16-20 was fairly evident on the grasses but there was very little evidence of fertilizer on the clovers.

The 11-48 was slightly evident on grasses but not on clovers. The phosphorous was not evident.

April 6.

A few head of cattle were turned into the test plot area. The stipa and smilo were the first plants to be grazed. The fertilized strips were also grazed closely. The rose clover was not grazed to any great extent.

Fertilizer strips applied March 3, 1954. Treatment #1--no rock phosphate in 1952. The fertilizer strips 16-20 (300#/acre) and Urea (100#/acre) were evident on April 6. The 16-20 seemed to be more evident than the Urea. The growth had been increased about one-fourth.

On May 10 the fertilizer was still active. The response from both fertilizers looked about the same. The growth on the fertilized strips was about 18-20 inches and on the non-fertilized it was about 10-12 inches high.

Treatment #2--one ton of rock per acre and treatment #3--two tons of rock per acre were about the same as treatment #1, no rock. There seemed to be a visible difference in growth between heavy rock and no rock phosphate at the beginning of the growing season but at the end of the growing season this difference was not apparent.

JOHN McARTHUR RANCH, McArthur

Plot ripped 12 inches deep in fall of 1953, then subsided 30 inches deep, 3 feet apart, not disked, drill row planting was impossible.

Planted March 18, 1954. Broadcast on very wet soil. Eleven different mixtures of grasses and legumes were planted.

A fertilizer strip (200 lbs. 16-24/acre) 20 feet wide was applied down the center of the plot.

Individual plots were 20' X 200'.

Observation: June 9, 1954

Hardinggrass and tall fescue were the only two grasses found. These plants were present in small numbers. They were about 2 inches high.

A few alfalfa plants were found. They were about 3 inches high.

Rose clover was the only annual clover present. The plants were very small and had a red appearance.

The fertilizer strip was not evident.

This same test plot area will be seeded this fall.

FLOYD BIDWELL, St. John Place, East of Fall River Mills

Plot plowed in fall of 1953, disked at planting time.

Planted: February 11, 1954; planted in rain--broadcast. Eleven different mixtures were planted. At time of observation on June 9, the grasses were too small to identify.

Mixture 1:

Annual clovers--rose, crimson, and sub. All clovers were present but the stand was poor and the plants were small and reddish in color. The clovers did not respond to nitrogen and phosphorous. A portion of the plot was inoculated with nitrogen. There was no visible differences between inoculated and non-inoculated. A few flower heads were on the clovers, one or two per plant.

Mixture 2:

Soft chess, annual ryegrass, and annual clovers. There was a fair stand of soft chess which was about 4-6 inches high. The plants were headed out. The annual ryegrass stand was poor. The plants were about 8 inches and headed out. The clovers were very unhealthy and the stand was poor.

The soft chess and ryegrass made about 4 inches more growth on the nitrogen fertilizer strip than on the non-fertilized areas.

The stands of the other grass-alfalfa mixtures were from fair to poor. The grasses were about 2 inches and looked healthy. Alfalfa was about 3 inches high and the plants that were present looked good. The fertilizer strips, nitrogen and phosphorous were weakly evident on the grasses and alfalfas at the time this observation was made.

A portion of the plots were inoculated with nitrogen but the effects were not evident.

A portion of the plots were dragged over with a spike-toothed harrow after planting. The stand of grasses and legumes appeared to be better where the area was dragged after planting.

Some volunteer cereal rye was growing on the plots. The rye responded favorably to the nitrogen strips but the phosphorous strips were not evident.

UNIVERSITY OF CALIFORNIA
AGRICULTURAL EXTENSION SERVICE

RANGE FERTILIZATION AS MEASURED BY MEAT/ACRE

COUNTY Glenn RANCH J. W. Sevier

Woodland Grass Type April 8 1954

TREATMENT	EXPERIMENTAL FIELDS	
	A	B
Number of Acres	365	133
Fertilizer/Acre Applied Dec. 15/53	None	N 48 P 26*
Fertilizer Cost/Acre		$ 11.26
STOCKING KIND		
Number Animals (Calves	40	80
Date In	Feb. 3	40 - Feb. 3 40 - Feb. 18
Date Out	Apr. 7	Apr. 7
Days of Grazing	63	63 and 48
Animal Days of Grazing	2520	4440
Animals Days of Grazing/Acre	6.9	33.4
Acres/Animal	9.13	1.66

WEIGHTS

Average Weight In	426	446
Total Weight In	17,040	35,730
Total Weight Out April 8	21,447	44,030
Total Gain	4,407	8,300
Average Daily Gain	1.75	1.87
Average Daily Gain/Acre	12.1	62.4
Gain Acre from Fertilizer		50.3
VALUE @ 20¢/lb.		10.06
Profit or Loss in 63 Days		$11.20 Fertilizer Cost 2.25 Application

* Numbers refer to lbs. Nitrogen and available Phosphorus (P_2O_5) applied.

B - Here derived from separate applications by plane of 105 lbs. Urea and 135 lbs. Superphosphate/Ac. Actual cost of application by plane was $2.26/Ac. in addition to cost of fertilizer above.

The full value of the fertilizer plus application costs had not been recovered on April 8. There was still lots of feed to be taken off before the end of the growing season. If a rancher could break even on such an operation he would probably be ahead because he can run more head on less acres. Fewer acres would mean less fencing, less taxes and less maintenance. The fertilization would probably improve the soil structure and in time the fertilizers would encourage better types of plants.

UNIVERSITY OF CALIFORNIA
AGRICULTURAL EXTENSION SERVICE

RANGE FERTILIZATION AS MEASURED BY MEAT/ACRE

COUNTY Tehama RANCH Teissiere Bros.

April 9 1954

TREATMENT	EXPERIMENTAL FIELDS					
	A	B		C		
Number of Acres	60	30		30		
		N	P	N	P	
Fertilizer/Acre Applied Oct. 15/54	None	26	78	64	80 *	
Fertilizer Cost/Acre		$12.00		$19.00		

STOCKING	KIND					
Number Animals	(Sheep)	30 ewes 30 Lambs		30 ewes 30 lambs		45 ewes 45 lambs
Date In		Feb. 3		Feb. 3		Feb.3
Date Out		Apr. 6		Apr. 6		Apr. 6
Days of Grazing		62		62		62
Animal Days of Grazing		1860		1860		2790
Animal Days of Grazing/Acre**		31.5		6.2		93
Acres/Animal						
WEIGHTS	Ewes	Lambs	Ewes	Lambs	Ewes	Lambs
Average Weight In	136	25.5	128	26.8	139	26.8
Total Weight In	4085	765	3840	805	6240	1205
Total Weight Out		2100		2050		3515
Total Gain		1335		1245		2310
Average Daily Gain		.72		.67		.83
Average Gain/Acre		22.25		41.5		77
Gain Acre from Fertilizer				19.25		54.75
VALUE @ 21¢/lb.				$4.04		$11.50
Profit or Loss in 63 Days						

*Numbers refer to lbs. Nitrogen and available phosphorus (P_2O_5) applied.

B - Derived from 200 lbs. 13-39. Ammonium Phosphate-Sulfate/Acre

C - Derived from 400 lbs. 16-20 Ammonium Phosphate-Sulfate/Acre

**Stocking calculated using a pair (lamb and ewe) as unit.

RANGE IMPROVEMENT

Seeding, Fertilization, and Livestock Use

R. Merton Love, Agronomy Department

Vasser Improved West Woodland Grass Range

History: ? - 1951: Used for grain and hay production.

1952: Sudangrass. 100# ammonium nitrate per acre.
Fall seeded to rose clover, Mt. Barker and Tallarook subclover, Goar tall fescue, harding, intermediate wheatgrass, common alfalfa, narrowleaf trefoil. 200#/acre 16-20-0 applied at time of seeding.

1953: 136 sheep days per acre: February and March ewes and lambs, early August ewes and rams.

1953-54: Test strips fertilized as follows:

16-20-0		Ammonium Sulfate	SSP	
Fall	Spring	Fall	Fall	Spring
104	104	79	200	200
208	208	158		
304	304	232		
520	520	396		

Grazing: 151 yearling ewe lambs weighed in January 6 and out January 27, again March 5 and March 29--257 sheep days per acre. Gains first period 6.9# per lamb, second period 8.1# per lamb--an average of 0.3# per lamb per day--85# of lamb per acre for the two grazing periods. They were turned in again May 5.

Forage yields: Forage samples were clipped, dried, and weighed each time the sheep were moved.

Dry Weight of Forage (pounds per acre)

Treatment		1-5	1-20	3-4	3-30	Total to 3-30
Am. Sulf.	79#	291	291	189	1094	1865
	396#	1535	1238	161	1010	3944
16-20-0	104#	555	224	106	1554	2439
	520#	2420	1820	551	1558	6349
SSP	200#	113	260	13	815	1201
Check	0#	240	144	0	161	545

RANGE IMPROVEMENT OF HILL PASTURE

Annual Legumes, Fertilization, and Livestock Use

A. H. Murphy, Superintendent

Buck Pasture Woodland Grass Range

History: ? - 1952: No previous cultivation. Used for grazing, mostly sheep.

1952 Fall: Disked lightly one way. Fertilized with 200# per acre SSP. Seeded to a mixture of equal amounts of bur, rose, crimson, and Mt. Barker and Tallarook subclover to total 7.5# per acre.

1953: Grazed four times to total 153.4 sheep days per acre. Test strips fertilized as in Vasser Improved West.

1954: Grazed 81.3 sheep days per acre by ewes and lambs in March. 695 ewes with lambs turned in May 6.

Forage yields taken as in Vasser Improved West.

Dry Weight of Forage (pounds per acre)

Treatment		1-20	1-28	3-2	Total to 3-2
Am. Sulf.	79#/A.	817	445	214	1476
	396	1551	801	459	2811
16-20-0	104	632	503	243	1378
	520	1933	1156	747	3836
SSP	200	346	401	112	859
Check	0	349	166	163	678

-2nd Hopland Range Field Day 5/8/54

S.C.S. Demonstration Plot, Corning
Oct. 27 Fertilizer Applied 400# 16-20
Rainfall 17 inches
Filaree Range

	Unfertilized	Fertilized
Acreage	300	40
Date of readiness	3/3	2/5
Stocking rate-pairs/acre	.62	3.8
First date in	3/7	2/23

Date Out	4/22	----------	4/22
Pair Days grazing total	7240	----------	7280
Pair Days per acre	24	----------	182
Average lamb weight in	52.6	----------	44.6
Average lamb weight out	71.6	----------	83.3-5*
Lamb gain	19.1	----------	33.7
Daily gain	.49	----------	.70
Total gain	3478	----------	5096
Total gain/acre	11.6	----------	127
Value of gain @ 22 1/2¢/lb.	2.61	----------	28.57
Cost of fertilizer and spreading			17.75
Net			10.82

*Animals removed 10 days.
Only 15 sample lambs from each field were weighed in and out. Same lambs used each time. These weights used to calculate the other other weights.

THE VALUE OF LITTER IN RANGE FORAGE PRODUCTION
Hopland Field Day, May 8, 1954

by Harold F. Heady

Litter is defined as that uneaten, dry plant material, remaining on the ground after the grazing season. This study is designed to show the value of amounts of litter in promoting maximum forage growth.

TREATMENTS, August, 1952 and August, 1953.

1. Bare - all litter removed to soil surface.
2. Clipped 1¼" - none returned.
3. " " - 25% returned.
4. " " - 50% returned.
5. " " -75% returned.
6. " " - 100% returned.
7. Clipped 3" - none returned.
8. Unclipped.

RESULTS

1. Erosion: Even with this gentle slope there was movement of soil from the bare plots of those adjacent during the first fall rains. Not until approximately March 1 was the soil in the bare plots covered with plants.

2. Speed of fall growth: Sufficient litter fosters tall early growth on the better plants as indicated by the average height in inches of soft chess on Nov. 4, 1953.

Treatment	1	2	3	4	5	6	7	8
Height of soft chess	0.81	0.97	1.18	1.36	1.40	1.74	1.65	2.98

3. Changes in kinds of plants: Those plots with the greatest amounts of litter have shown a gradual increase in soft chess and a notable decrease in worthless weeds. The bare plots contain mostly low value weeds such as owl's clover and gold fields.

4. Herbage production: Total herbage production in pounds per acre was as follows on April 29:

Treatment	1	2	3	4	5	6	7	8
lbs./acre	1075	1625	1625	2000	1925	1950	2550	2500

Recommendations: Ample litter must remain on the ground to prevent erosion, to promote early fall growth, to permit the best plants to grow, and to gain high forage production. Preliminary indications are that between 700 and 1000 pounds of plant materials are needed for next year's crop. Moderate grazing this year pays next year.

SUMMARY OF RANGE RESEEDING SURVEY BETWEEN ELEVATIONS OF 500 to 1,000 Feet

The winter rainfall was about 40 inches. The early fall rains were favorable for plant growth. The temperatures did reach the freezing point a few mornings. The rainfall was very light during May and June.

Seeding on burned areas:

Burnet appeared to be the plant that was best able to survive and still maintain its vigor. With the exception of the Charles Smith Ranch, the Burnet stand was from fair to good. The fact that Burnet is doing so well might be attributed to its poor palatibility to cattle. Its palatability is a debatable question among ranchers. Deer seem to like the plant very much.

Hardinggrass would probably be put into the number two rating. From a forage standpoint, Hardinggrass would be the number one plant that was seeded.

The stand was poor on some of the burns but where it was growing it sure looked good. The plants were stooling out and getting larger each year. Hardinggrass appeared to be very slow in reseeding itself.

Smilo would be rated number three. The plants were found most consistently in protected areas such as old logs, brush or around stumps. According to some ranchers the palatibility of smilo is poor. On some of the burns the smilo is grazed close and on others the plants are grazed very little.

Perennial ryegrass is probably the best grass the first year after the burn. After the second year the ryegrasses seem to decline fairly fast. The plants make less and less growth each year until they disappear.

Tall fescue and orchard did fair on a few of the burns but in most instances the stand was very poor.

Intermediate wheatgrass has almost disappeared from the 1952 seedings.

The reseeding species talked about so far have been perennials.

Rose clover, an annual, seems to be doing very good on most of the burns. Rose clover seems to spread from small patches. The second year the patch might be two feet across and the third or fourth year it might increase to four to ten feet across. On a few of the old burns rose is spreading slowly.

Another annual that is used in the seeding mixture is annual ryegrass. Annual ryegrass makes a good cover and also a good forage the first year following a burn. The plants start declinging in vigor after the first year.

Prairie brome is a short-lived perennial grass that has been seeded on the burns but the stand has been very poor in most cases. The plant acts more like an annual than it does as a perennial.

If a perennial cover were desired my recommendation mixture for areas below 1,000 feet elevation would be as follows:

Mixture 1:	Hardinggrass	2#
	Smilo	1#
	Perennial ryegrass	1#
	Burnet	1#
	Rose clover	1#
	Soft chess	1#

If an annual cover were desired for fuel for reburn the recommendation would be as follows:

Mixture 2:	Annual ryegrass	2#
	Soft chess	2# if available, if not use 4# Annual ryegrass
	Rose clover	1#
	Burnet	1#

If the rancher desires to use the lowest cost mixture then the recommendation is as follows:

Mixture 3:	Annual ryegrass	4#
	Rose clover	1#

The cost would be about one dollar. This mixture gives excellent forage for about two or three years then there would be fuel for a reburn.

Mixture 4:	Rose clover	2#
	Crimson clover	2#
	Sub clover	2#

This is for dryland seedings on abandoned crop lands wehere cultivation is possible.

SUMMARY OF RANGE RESEEDING SURVEY ABOVE 1,000 FEET IN ELEVATION

The weather conditions from 1,000 feet to 2,000 feet are about the same as those below 1,000 feet. The winter temperatures are slightly colder and the amount of rainfall is a little greater at the higher elevations. The cool temperatures lasted pretty late into the spring season.

Orchardgrass appeared to be the number one plant. The stand and vigor of the plants were good on most of the burns.

Hardinggrass was probably the number two plant. The plant vigor was good but the stand was poor on some of the burns.

Perennial ryegrasses would have a rating of about three. Ryegrass normally declines in vigor and stand after two or three years but on the north slope of Blue Mountain perennial rye still looks good.

Tall fescue is doing fair on most of the burns. The stand is normally weak.

Smilo is doing very good in certain areas but usually the plants can be found only in protected areas around stumps, logs and slash.

Rose clover is doing very good on some of the burns. The stand is getting thicker each year.

The prairie brome stand has been poor on most of the burns.

The mountain brome has shown good results above 3,000 feet. The annual clovers have not done well above 3,000 feet elevation.

Some of the wheatgrasses have done satisfactorily at elevations above 3,000 feet.

Recommendations for seeding burns at this elevation:

Orchardgrass	1 1/2 #
Hardinggrass	1 #
Smilo	1/2 #
Perennial ryegrass	1/2 #
Rose clover	1#

McARTHUR SEEDINGS

The rainfall for the past season was about 15 inches. A spring drought had some damaging effects on plant growth. Some late frost was also unfavorable for plant survival. Cool weather extended into early summer which also retarded plant growth.

The new spring broadcast seeding on the John McArthur Ranch was not a successful one. A large number of birds were observed in the area soon after broadcast seeding. Several severe freezes came after germination. The results possibly would have been different if the seeds had been drilled instead of broadcasted.

Some of the plants of the two year old nursery plot on the McArthur ranch looked good. Tall fescue looks good. The growth and vigor are both good.

One strain of crested wheatgrass showed possibilities of doing good. Hardinggrass was looking good. Perennial ryegrass might be able to hold its own.

The wheatgrasses made good growth.

The stand and growth of the Burnet was encouraging.

Ladak alfalfa appeared to be doing better than the other seeded legumes. Sevelera alfalfa was looking good. The sweet clovers looked pretty good.

A stand of Ladak alfalfa, intermediate wheatgrass and crested wheat looked good. It was a spring seeding. The seeds were drilled in and fertilized.

The end results of the seeding on the St. John Ranch will not be known until late summer.