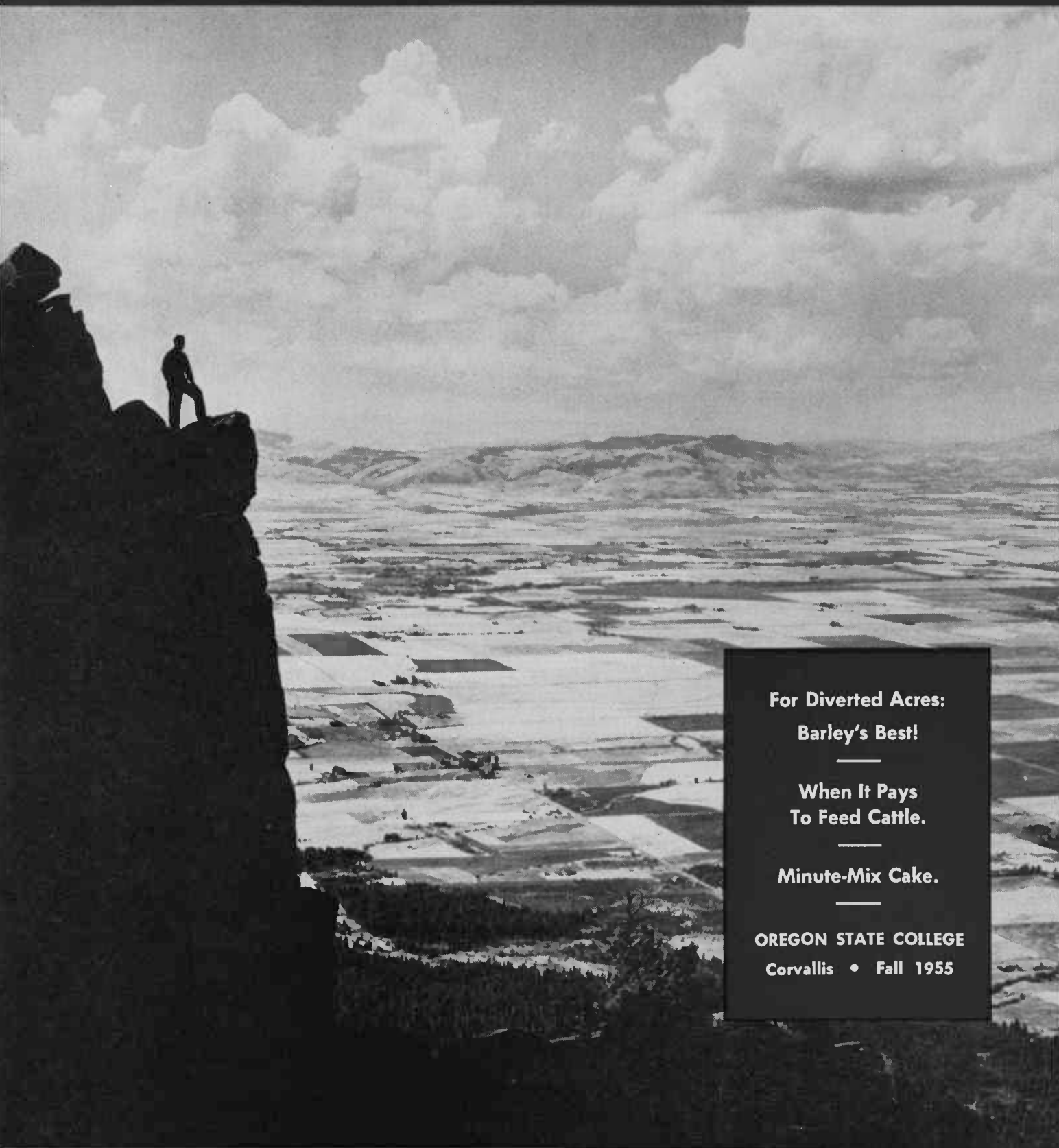
Oregon's Agricultural PROGRESS



For Diverted Acres:
Barley's Best!

When It Pays
To Feed Cattle.

Minute-Mix Cake.

OREGON STATE COLLEGE
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Oregon's Agricultural PROGRESS

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COVER STORY: Since 1953, some 400,000 acres have been taken out of wheat production in Oregon, including about 30,000 acres in the Grand Ronde Valley pictured here. Two OSC agricultural economists report the most profitable alternatives for diverted acres on page 12. (Photo: Ray Atkeson)

RETAIL SALES will hit new highs this fall.

Consumers are spending more money in and out of food stores. Unfortunately this money is being spread over more marketing services and more farm products. This keeps farmers in an income-cost squeeze that is the tightest since 1940. There is little sign of easing in the near future. Compared to the 1930's, though, farmers are still in good shape, if that's any consolation.

Employment and wages off farms are at record levels. Inventories are starting to build up again but new orders are still pouring in. The end to the current upswing is not yet in sight although there are signs that it is slowing. The boom in business helps hold up prices paid as well as prices received by farmers.

Wheat

Oregon farmers' incomes from 1955 wheat will scarcely total 40 million dollars this year compared to nearly 70 million from the '53 crop. The decline comes mainly from the cut in acreage but is due partly to lower prices and smaller yields.

Incomes from wheat are not likely to be much larger next year. Yields may be better but probably not enough to more than offset the coming cut of 10 to 15 per cent in prices. The acreage permitted under the control program for 1956 is slightly larger than in 1955.

Despite acreage controls and lower yields, we are still producing more wheat in the Northwest and the U. S. than we are using and selling. The end of the buildup in wheat stocks is not in sight. More wheat priced into the feed market would help.

Apparently we are approaching the point where wheat land producing less than 20 bushels of barley per acre would return more in grass and beef.

Feed

Hay is scarce in Oregon this year. Our supply per animal is at least 13 per cent smaller than last year and 24 per cent below average.

Fortunately, we have larger amounts of feed grains at lower prices. These along with more silage, straw, and potatoes in some areas, will help stretch hay supplies.

Oregon hay prices already have been bid up to the highest level in the West.

Large supplies tighten income-cost squeeze . . . Price trends favor feeding more grain, less hay . . . Better cattle prices not yet in sight.

Farm Outlook

By Agricultural Economist M. D. Thomas

Further rises are likely to be small unless winter and spring weather is bad.

We have in sight in Oregon and the Northwest about twice as much feed grain as two years ago, not counting in-shipments. We are producing more again this year than we are likely to use. That means a further buildup in our carryover next year, especially of barley. Also, considerable corn is being shipped in for storage.

Our potential for livestock production is great. But we need more hay, silage, and pasture if we are to market larger amounts of our feed grain through cattle and sheep. Even hogs and poultry use some forage.

Hay production in the year ahead is likely to increase more than forage-consuming animals. This would tend to lower prices for hay. Yet, returns from hay are more likely to hold closer to the recent past than returns from grains and most other field crops.

Livestock & meat

Record feed supplies and large numbers of meat animals on farms add up to a record volume of livestock products. This will hold down livestock prices and keep profit margins rather narrow in the months ahead.

U. S. meat production this year is expected to total nearly 27 billion pounds, or 5 per cent more than last year's record. That means 160 pounds —7 pounds more than last year for each person. All of the increase from last year is pork. There will be still more next year.

Seasonal ups and downs are likely to be the main price changes for livestock in the months ahead.

Beef cattle

Mid-September rains revived hopes for better range feed, but cattle are going into the winter in below average condition in most of eastern Oregon.

Poor feed conditions have plagued cattlemen in Oregon's range country since last spring. Most of their reserve haystacks were used, and their new crop of meadow hay is around 13 per cent smaller than last year. On top of this, ranges provided much less feed than usual this summer. Things would be worse, though, if ranges weren't in fairly good condition elsewhere.

The sooner herds are brought in line with normal forage production, the better. Ranchers caught with overstocked ranges take unnecessary losses. Sell inferior cows and irregular breeders as well as yearlings and calves. Then use barley or cottonseed cake to stretch feed for the basic cow herd. Barley at $40 to $45 a ton provides TDN at lower cost than alfalfa hay at $30.

Lower grain prices are helping to keep feeder cattle prices near last year's level even though fat cattle are a little lower. Further increases in meat supplies make better beef prices look doubtful for the near future, despite rising consumer incomes.

Hogs

Until we get more forage, hogs look like the best way to use more feed grain. Pacific Coast hog prices are the highest in the country. We ship in lots of live hogs and dressed pork from states like Nebraska and the Dakotas where hog prices are $2 to $4 a hundred lower than here.

Unfortunately, we probably have seen the last of $20 hog prices for some time. Larger pig crops in practically every state are lowering hog prices from coast to coast.

(Continued, page 16)

MORE PASTURE, hay, and silage is needed before Oregon farmers market large amounts of feed grains through cattle and sheep. There is about twice as much feed grain in the Northwest as 2 years ago.

CURRENT FEED PRICES now approach the "medium" level for cattle feeding.

When It Pays To Feed Cattle

An agricultural economist reports "break-even" prices between feeder and slaughter cattle, at various feed-price levels. See chart on next page.

WHEN DOES it pay to feed cattle? Price margins and feed prices are keys to answering that question.

And agricultural economist W. B. Back has estimated margins necessary under three types of cattle feeding operations—calves, yearlings, and two's —at three levels of feed prices—high, medium, and low. These margins are based on a survey of 18 Oregon cattle feeders in 1953 and research data from Oregon, Idaho, and Midwest feeding trials.

You can figure these margins by computing the difference between feeder and slaughter prices, according to the current level of feed prices. These prices are graphed on the following page, one graph for calves, one for yearlings, and one for 2-year-olds.

According to the graph, you would *not* lose money feeding calves a medium cost ration if you got at least $21 for them after feeding 180 days, even if they cost $21 per cwt. This is a "zero" margin. Feed prices this year will run about the "medium" level.

The zero margin for two's doesn't occur until a combination of low feed prices and high slaughter cattle prices exist. Price margins for yearlings are between those for calves and two's.

Estimate profits

By using these graphs, you can estimate the most you can pay for calves, yearlings, or two's for different feed prices, with a good "guess" at future slaughter prices. Be sure to add a marketing cost to the margins you get from the graphs, plus any profit you feel you need above the usual operating costs.

Note about these graphs:

1. Prices you can afford to pay for feeders do not rise or fall as fast as changes in slaughter prices. This means your margins must be larger when slaughter prices are low.

2. Feeders can afford to pay more for calves than for older cattle at any slaughter cattle and feed price, except when cattle prices are extremely low and feed costs are high. This assumes you have the facilities and feeds needed for calves to do well.

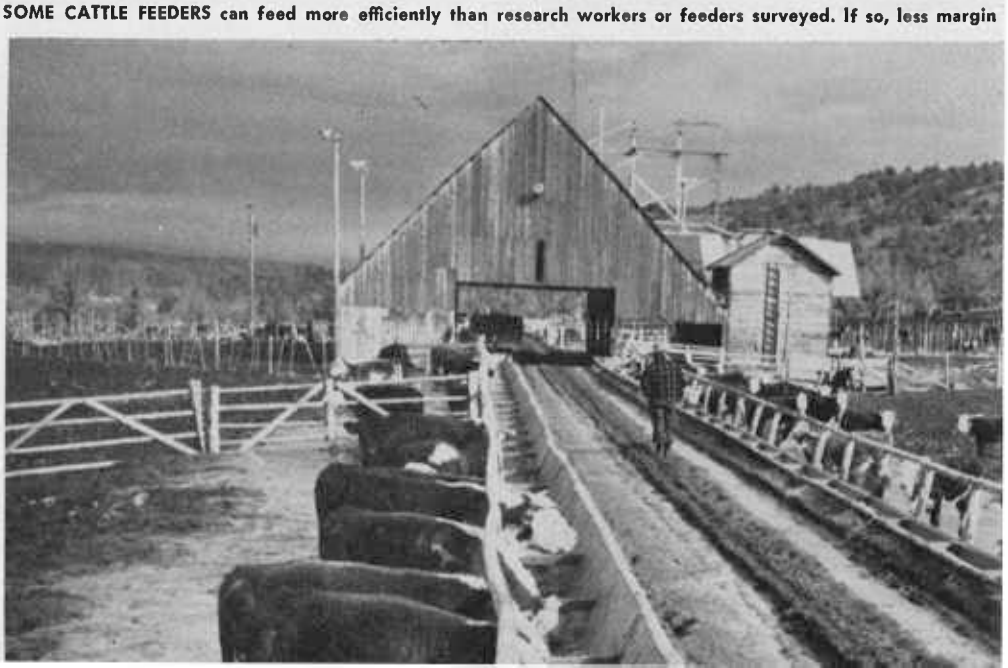
3. Feed costs are important when figuring "break-even" feeder prices and when figuring margins needed between buying and selling price.

Generally, Back reports that you would "automatically break even" on calves with $25 slaughter prices at high feed costs, $21 at medium feed costs, and $18 with low feed costs. This is considering all costs except a marketing cost, and including all cash costs, interest at 6 per cent on cattle and 5 per cent on facilities, depreciation and upkeep of facilities at $8 per head, $1 per head for veterinarian and supplies, 1 per cent for death losses, and labor at $1 per hour.

Assumptions given

Back assumed some other items in computing the graphs, based primarily

SOME CATTLE FEEDERS can feed more efficiently than research workers or feeders surveyed. If so, less margin



on the survey of Oregon dry-lot feeders and experimental data:

¶ Animals gained an average of 2 pounds per head per day.

¶ The feeding period averaged 180 days for calves, 150 days for yearlings, and 120 days for two-year-olds.

¶ "High feed prices" are concentrates costing $60 a ton, hay at $30 a ton. "Medium feed prices" are concentrates at $50 a ton, hay at $25 a ton. "Low feed prices," concentrates at $40 a ton, hay at $20 a ton.

Margins needed to break even from dry-lot feeding show the advantages of different feedlot operations under different situations.

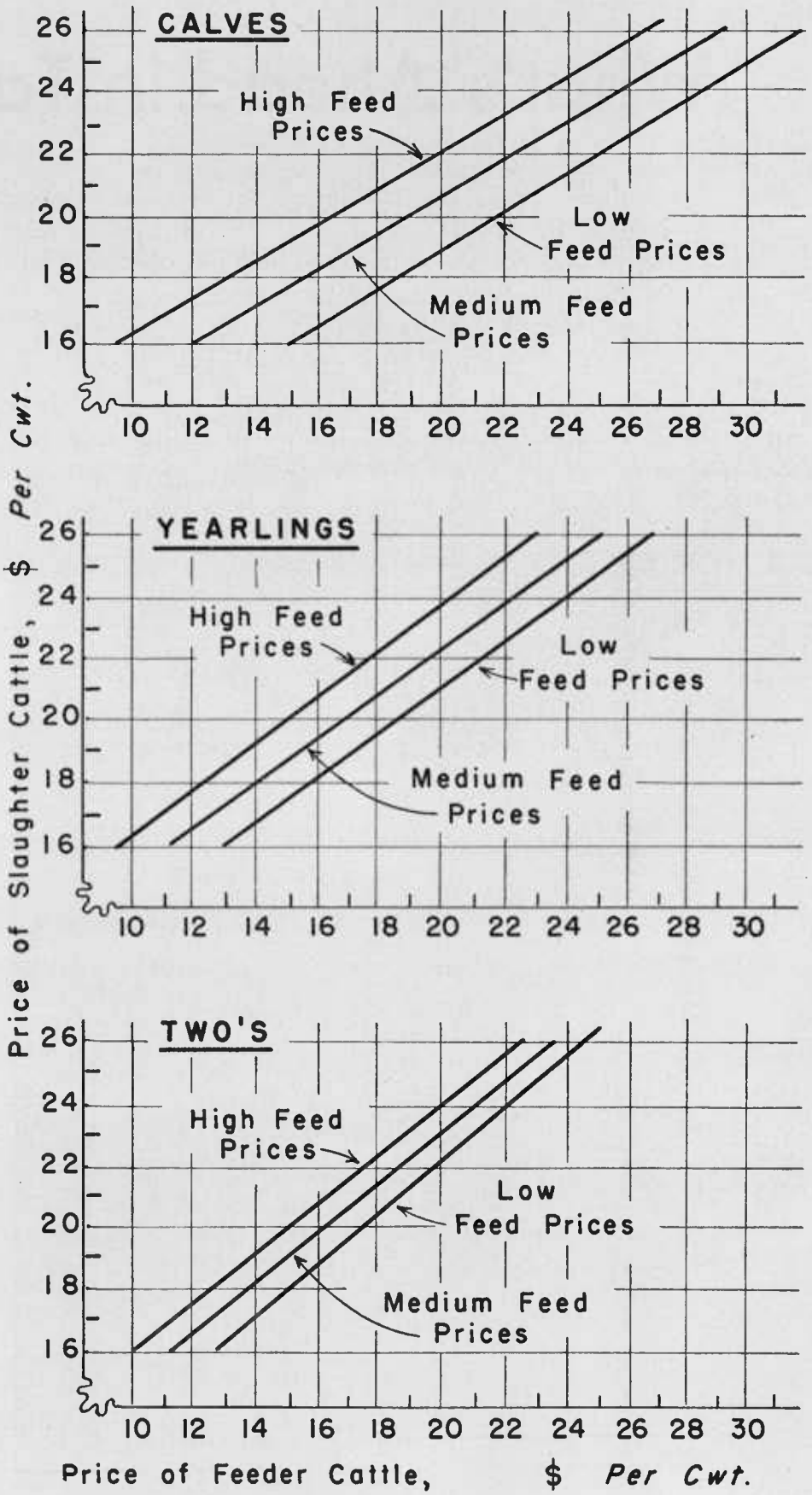
It may be more profitable, for example, to feed calves when feed costs drop and slaughter prices rise, since calves gain faster on the same amount of feed than do older animals. And it's a gain in weight that brings profit in this case.

Margins for calves and older cattle are about the same at high feed prices and low feeder and slaughter prices, but usually older cattle cost less per hundredweight. In this high feed-low cattle price situation, feeding cattle to higher grade is the only way to profit. Here, you can put more grade on older cattle than on calves.

The economist points out that some cattle feeders can do better than results of experiments. If so, less margin than the graphs show would be needed to break even.

Changes in margins needed for profit could be made to fit individual farm situations. The ones shown here are meant only as guides. But Back hopes they're good guides for those who are wondering if cattle feeding will pay.

"Break-Even" Slaughter-Feeder Prices



is needed to break even. Adjust margins to fit your needs.

What's Ahead in Tall Fescue

Basic research by an OSC agronomist promises to result in some important tall fescue varieties. Research on "how" and "why" of the plant's genetic makeup is paving the way for grasses that will help keep Oregon first in grass seed production.

PARCHMENT BAGS covering flowering tall fescue plants make sure that plant pollinates only itself.

GRASSES THAT GROW in the winter, double top seed yields, double present feeding values, or yield twice as much hay as present varieties—that's what you may see in future OSC tall fescue varieties.

Six year's research by an OSC agronomist is paying off in these promising genetic characteristics.

It shows, according to agronomist J. Ritchie Cowan, the tremendous potential of this popular grass. While one or more varieties with the above characteristics may be several years away, Cowan's basic research has reached a point where tangible possibilities can be viewed. When he began, these potentials were only hopes — research made them possibilities, may make them real.

Needed right tools

Cowan faced a problem common to every farmer when he began in 1949: he needed the right tools. Although his were much different, before he could come up with improved tall fescue varieties, he had to know something about the range of differences within the variety, what governs them genetically, and most important, how he could manipulate these differences to get the better varieties Oregon—and the nation—needs.

He began by setting out a tall fescue "nursery" of 18,000 plants at the Station's Granger farm north of Corvallis. Rate of recovery after cutting (similar to grazing), forage and seed yields, and general plant habits were recorded.

He also ran into a knotty problem. More than nine-tenths of the plants were self-sterile. Similar to many

PORTION of tall fescue nursery of 18,000 plants. Nursery important so researchers can measure differences among tall fescue plants. Data taken for recovery after clipping, forage, seed yields.

plants, pollen from another plant is needed to set seed. What's more, tall fescue plants are choosy about the pollen they'll accept. Now, there's indication that only pollen from other plants with a similar genetic makeup are capable of setting seed. This has an advantage the agronomist soon found: self-sterile plants with desirable characteristics don't lose them through inbreeding, by self-pollination, or from random crossbreeding. Genetic lines tend to stabilize, remain much the same from generation to generation. After crossing, they either equal or better their parents.

Cloning necessary

But self-sterility forced a shift in research plans. It meant increasing promising plants by "cloning," a breaking apart of the parent plant into about 150 to 200 vegetative parts, then replanting.

The self-sterility question had to be answered. To begin, thousands of vegetable parchment bags were tied over panicles before flowering, so the plant pollinated only itself. Analysis on this problem is continuing.

All data were recorded on computing machine punch cards, and repeated several years to account for variations in weather. In all, some 67,500 numbers have been recorded, and here's what they've shown:

¶ Tall fescue varies a lot in its ability to produce seed. Alta fescue yields in Oregon have reached 1,000 pounds per acre. Promising OSC clones can produce more than 2,000 pounds per acre, without irrigation or fertilization. Others yield much less than the state average.

¶ Protein content — a measure of feeding value — is up to 25 per cent in some lines, more than doubling that of Alta fescue. Cowan also has clones much lower than Alta fescue.

¶ Some clones recover rapidly after clipping. This is important for the forage as a pasture grass. For example, some clones begin regrowth within an hour after clipping, some wait up to 10 days before growing.

¶ All grasses grow a little in the winter, but one line puts on about 15 inches in the winter months (see picture). Trouble is, it dies down in hot, summer weather.

¶ Hay yields vary a lot, too. Some lines yield more than twice as much as current tall fescue varieties, others much less.

What's ahead

Several things are ahead before you'll see some varieties released:

1. The cause of self-sterility must be known. There is something about either the pollen or female plant parts that rejects self-fertilization, accepts fertilization only from other plants with a similar genetic makeup. Also, why a few tall fescue plants are highly self-fertile while most of them are highly self-sterile needs explanation.

2. Promising genetic lines must be brought together into a common plant for variety increase. Just how many lines should and could be included has yet to be worked out. Self-sterility may keep some promising lines from being mixed with others.

3. A quick, inexpensive measure of forage quality needs to be found. Time spent for feeding trials might unnecessarily delay release of a promising variety. Agricultural chemists are testing one promising new measure now.

4. More efficient methods of cloning are needed. Because so much tall fescue is self-sterile, present cloning takes a lot of time. Cowan is working on better methods.

WINTER GROWTH of a promising tall fescue from Algeria is shown below. Picture was snapped last March. Plant grows about 15 inches during the winter, but dies down in hot, summer weather.

PLANT PATHOLOGIST John Hardison checks samples of perennial ryegrass seed for disease spores.

Blind Seed Disease, *Under Control!*

Quick action by a plant pathologist and Oregon's perennial ryegrass seed industry halted a disease that still plagues much of the crop over the world.

PERENNIAL RYEGRASS GROWERS are rounding out their sixth straight harvest of seed almost free of damaging disease. Seven years ago, "blind seed," a disease that kills seeds, again had ruined more than one-third of Oregon's—and the nation's—seed crop.

Almost all of the U. S. perennial ryegrass seed supply is raised in the Willamette Valley.

Control of this disease[1] was brought about by quick action of a U. S. Department of Agriculture plant pathologist at Oregon State College, with the cooperation of county extension agents, the OSC seed testing laboratory, and the state's seed industry.

Seed failed to germinate

The story of Oregon's bout with blind seed began 12 years ago when OSC seed laboratory technicians noticed more and more ryegrass seed mysteriously failing to germinate. Nearly one-third of the seed crop failed to make "blue tag"—90% germination. By 1944 almost nine-tenths of the acreage was infested.

Cause of the trouble was identified in 1943 as a fungus. But practical controls had yet to be worked out. That was up to plant pathologist John Hardison.

Overwintered diseased seed was the source of infection. In the spring "spore cups" (see picture) emerged while the crop was in flower. Spores were showered on young, healthy plant heads. These infected young seeds. Later, slimy spore masses were formed on seed heads, giving the field a slightly reddish look. These "secondary" spores infected other developing seeds, spreading from head to head by insects and rain. The fungus continued growing, eventually killing the seed. During harvest, much of this diseased seed was left on the field. The disease overwintered in the seed, and the cycle began anew the following spring.

[1] Blind seed in perennial ryegrass still plagues growers in New Zealand, Scotland, and other European countries. It has been recorded in New Zealand for 30 years, has been known in this country for 12. Imported New Zealand seed planted in the Halsey-Harrisburg area before 1941 apparently brought the disease to Oregon. It has now spread to most Willamette Valley counties.

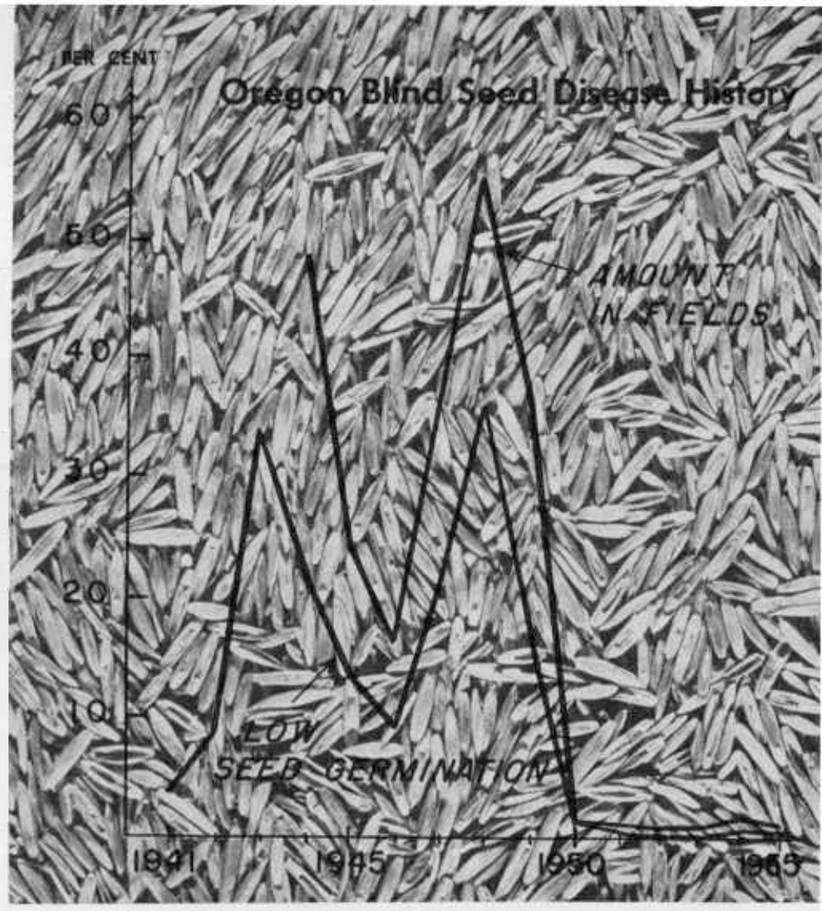
Infected seed destroyed

The key weakness in the disease's life cycle is in the overwintering stage. Several things could—and were—done to destroy infected seed. Hardison suggested plowing under badly infested fields detected in his seed tests before spring. Then he advised planting disease-free or 2-year-old seed. Research and grower experience later showed he was on the right track.

The disease was reduced the next year. Hardison microscopically checked cleaned seed submitted for certification to find the amount of disease in each field. Growers were advised of necessary control measures.

The chart traces the disease's course. During the war and early postwar years, the percentage of infested fields dropped from a high of nearly 50 per cent to 18 per cent. Severely damaged seed lots dropped from 30 to 14 per cent. The disease was being controlled.

Then the postwar price boom hit ryegrass. More farmers — many unaware of the disease — got into the seed-growing business while others gambled instead of plowing infested fields. The disease's explosive nature again showed up. In 1948 blind seed once more was reported in more than 80 per cent of the fields with more than one-third of the crop severely damaged.



Growers then enforced burning or plowing of all infested fields. 1950 saw a sharp drop—to below 10 per cent—of blind seed. County extension agents continued warning growers with diseased fields. This year only 1 per cent of fields showed a damaging amount of disease.

Controls not costly

Although Oregon is the only place in the world where blind seed is under control, it's interesting that Hardison's research findings and recommendations brought no added cost to growers. No chemical sprays, dusts, or seed treatments are used. All the control measures have been designed as a part of a grower's usual farming operations. They include:

¶ Plant only disease-free or 24-month-old seed. Be sure seed is covered at least one-half inch deep.

¶ Plow all badly infested fields in fall or before May 1, and fields that have produced three or more crops.

¶ Burn all slightly infested fields after August 15, making them safe for further seed production.

¶ Adjust combine so light seed is put in the sack, not on the ground.

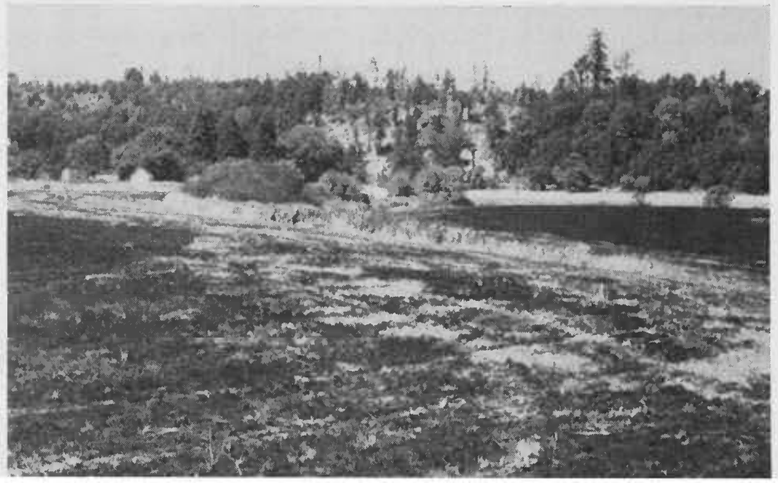
¶ Don't save diseased fields for pasture—plow them up.

¶ Burn all diseased screenings. Never seed screenings for pasture or scatter as feed to livestock.

Inexpensive checking of seed samples for disease is now part of a free service to growers by extension plant pathologists. They notify county extension agents of the amount of disease in all fields. Agents in turn suggest controls to farmers whose fields are threatened.

Today, blind seed disease control is routine. Hardison's controls have proved effective, and this year's 25-million-pound disease-free crop is of the highest quality in 15 years.

BURNING RYEGRASS stubble is a good way to kill infected seed that's fallen to ground. Disease fungus overwinters in seed. Half of Oregon's perennial ryegrass fields once were badly infested.



ACTUAL SIZE of fungus "spore cups" emerging after overwintering in infested seed. Spores are showered on healthy ryegrass when it's in flower. Fungus grows, eventually killing seed. Disease can spread rapidly.

Red sports of normally yellow or green apples are giving new popularity to former favorites. Added eye appeal is reason.

APPLE COLOR

Changed for Consumers!

CONSUMERS PREFER red apples, even though others are equal in taste.

A GENETIC MUTATION is giving popularity to apples that consumers once rejected because of skin color.

Nature has mysteriously changed color of apples growing on a limb—or part of a limb. Growers have grafted buds from these limbs and are successfully marketing a new apple.

This change in color is known as a "bud sport," and science doesn't know exactly how it happens. Sports usually are permanent, and color isn't the only characteristic that may be changed. Sometimes apples ripen earlier, are sweeter, yield more, or cluster differently on the limb. Often they appear in several combinations, some desirable, others not.

Consumers prefer red apples, and red sports of normally yellow, green, or striped red varieties are what growers are looking for. Many of these varieties are superior in taste, yield, and other things, and a red skin is all that's needed to make them acceptable.

Research began in 1948

Whether red sports are superior to the old standard has been part of an OSC horticulturist's research. Since 1948, Quentin Zielinski has tested some 40 red sports from over the U. S.

Research was cooperative between the horticulturist and workers at the Mid-Columbia, Umatilla, Milton-Freewater, and Malheur branch experiment stations.

In the testing program, Zielinski screens promising red sports for:

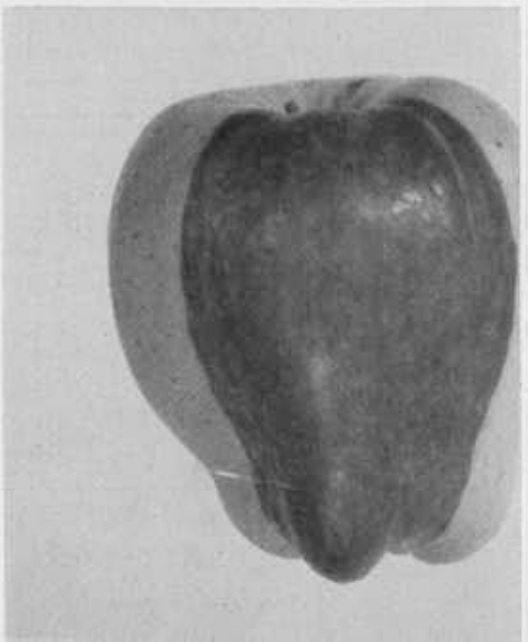
¶ Disease resistance. Varieties should tolerate apple scab, mildew, and wooly aphids, and other disorders.

¶ Tree crotch angle. Trees with wide angled crotches (greater than 60°) are desired. Narrow-crotched trees tend to break at bearing time.

¶ Bearing time. Growers want early-bearing trees—by the third or fourth

HORTICULTURIST ZIELINSKI holds red sport and yellow parent of Duchess apple. Promising red sports for commercial and home orchardists are listed on next page. Sports have been on test since 1948.

GENETIC MUTATIONS take several forms besides a solid ing. Growers can still select buds that will produce all-red



year after they have been planted.

¶ Bearing habit. Varieties must produce apples evenly spaced on limb's lateral spurs, not all at the tip. Apples should not appear in clusters of three or more.

¶ Picking time. Most red sports can be picked 10 days ahead of the parent variety.

¶ Harvest length. For commercial varieties, a short harvest is desired. Tree should be picked just once. Home gardeners desire a long picking season, usually 3 weeks.

¶ Yield. A variety must yield a commercial crop every year—not too high (requires extra thinning) or not too low. Yield must be consistent from year to year.

¶ Fruit color. Bright red is a must. The color should appear early and not change. Some red sports turn a reddish black, which is undesirable. Many growers prefer a solid red to a striped apple.

¶ Flesh type. Crisp, white, firm, fine-textured flesh is preferred.

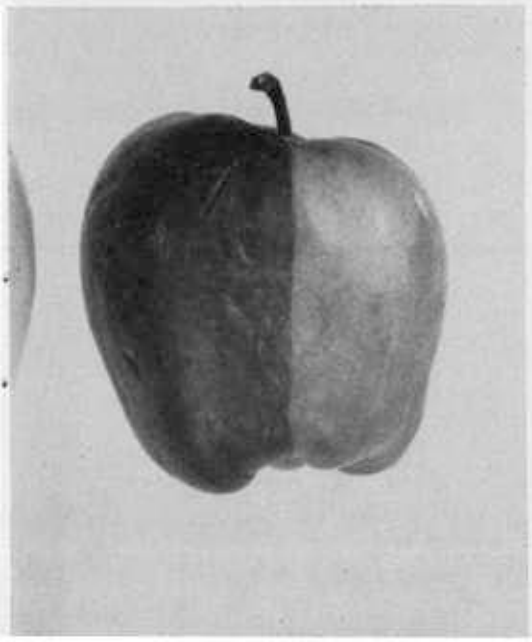
¶ Fruit type. Fruits should be smooth, uniform in shape, and medium to large in size and with an attractive, glossy finish.

¶ Flavor. Consumers like flavors that range from sweet to tart. They also prefer aromatic apples—those that give "that apple smell."

¶ Storage quality. Varieties are selected that will remain in good market condition for 3 to 6 months.

¶ Best use. Varieties serving a dual purpose — for both dessert (baking) and cooking (applesauce, pies) use are preferred.

red color. Mutation below appeared as a sectional color-apples. Such mutations are rare, of no immediate value.



Promising Red Sports for Commercial, Home Apple Growers

Parent variety	*Red Sport*	*Harvest time*[1]	*Flavor*[3]	*Best use*
Baldwin	Gailbraith Baldwin	Late	Sub-acid	Dessert
Bellflower	Red Bellflower[2]	Midseason	Sub-acid	Cooking
Duchess	Red Duchess[2]	Early	Sprightly sub-acid	Cooking
Gravenstein	Red Gravenstein (7 strains)	Early	Sprightly sub-acid	Cooking & dessert
Jonathan	Jon-a-red	Midseason	Sprightly sub-acid	Dessert
Jonathan	All-Red	Midseason	Sprightly sub-acid	Dessert
McIntosh	Red McIntosh	Midseason	Sprightly sub-acid	Dessert
Melba	Red Melba	Early	Mildly sub-acid	Cooking & dessert
Northern Spy	Red Spy	Late	Sprightly sub-acid	Cooking & dessert
Rome Beauty	Ruby Rome	Late	Mildly sub-acid	Cooking & dessert
Rome Beauty	Berkeley Rome	Late	Mildly sub-acid	Cooking & dessert
Rome Beauty	Seeando Red Rome 262	Late	Mildly sub-acid	Cooking & dessert
Spitzenburg	Red Spitzenburg	Late	Sprightly sub-acid	Cooking & dessert
Stayman Winesap	Staymared	Late	Sub-acid	Cooking & dessert
Winesap	Seeando Winesap	Late	Sub-acid	Cooking & dessert
Wealthy	Double-Red Wealthy	Midseason	Sprightly sub-acid	Cooking & dessert
Red Delicious	Redwin	Midseason	Sub-acid	Dessert
Red Delicious	Starking Delicious	Late	Mildly sub-acid	Dessert
Red Delicious	Bridgman Delicious	Late	Mildly sub-acid	Dessert
Red Delicious	Okanoma Delicious	Late	Mildly sub-acid	Dessert
Red Delicious	Richared Delicious	Late	Mildly sub-acid	Dessert
Red Delicious	Vance Delicious	Late	Mildly sub-acid	Dessert
Red Delicious	Shotwell Delicious	Late	Mildly sub-acid	Dessert
Red Delicious	Woelke Delicious	Late	Mildly sub-acid	Dessert
Richared Delicious	Royal Red	Late	Mildly sub-acid	Dessert
Starking Delicious	Red King	Late	Mildly sub-acid	Dessert
Starking Delicious	Earlired	Late	Mildly sub-acid	Dessert
Starking Delicious	Chelan Red	Late	Mildly sub-acid	Dessert
Starking Delicious	Watson Hi-Red	Late	Mildly sub-acid	Dessert
York Imperial	Yorking	Late	Mildly sub-acid	Cooking & dessert
York Imperial	York-a-Red	Late	Mildly sub-acid	Cooking & dessert

[1] Early, before September 1; Midseason, September 1-October 1; Late, after October 1.

[2] Varieties for home orchard purposes only. Other varieties are suited for both commercial and home plantings.

[3] Sub-acid is the taste between sweet and tart. Within the sub-acid range, taste is further described as mild or sprightly, depending on degree of flavor.

For Diverted Acres:

Idle, Barley, or Cattle?

Columbia Basin wheat farmers face several alternatives for handling diverted acres. An OSC agricultural economist's income estimates show which brings most money.

ASSUMING a 35 per cent cutback in wheat acreage, the

HOW IS THE best way to handle diverted acres?

In terms of income, agricultural economists Burl Back and John Nairn can give some helpful estimates.

These estimates are based on a survey of wheat alternatives conducted last year. Some 126 wheat growers—half with cow-calf operations, half without—were asked what they were doing with their diverted acres. Their opinions were reported in the Winter 1955 issue of *Oregon's Agricultural Progress.*

Then the economists went a step further. Taking average acreage and other figures, they computed incomes from different uses of diverted acres under two conditions: a farmer with and one without livestock facilities. In each case a 35 per cent cutback in wheat acreage was assumed.

Costs based on 1954 prices

These figures included average crop yields, machinery investment, etc. Prices used were wheat, $1.80 per bushel; barley, $.95 per bushel; and cattle (including calves and cull cows), $15 per hundredweight. Costs were based on 1954 prices wheat farmers paid for the things they used in farming. Incomes presented below are net before taxes and include returns on capital, labor, and management.

First, take Farmer A. His farm has 1,280 acres—1,170 in cropland, and 110 in noncropland. He has no livestock nor livestock-handling facilities. What incomes could he expect from different uses of land taken out of wheat?

WHEAT FARMERS with cow-calf operations stand to make more than those without, but most profitable alternative after wheat to both groups was barley.

researchers figured incomes from alternatives that included barley, grass for cattle, and leaving land idle.

Here are the economists' estimates:

Diverted Acre Use	Income	Wheat Income
	Dollars	*Per cent*
All wheat[1]	$14,119	100
Barley (cash crop)	11,328	80
Idle	7,462	53
Grass (not used, for conservation)	7,408	52
Grass, for cattle	7,160	51

[1] Estimates in table are compared with "all wheat"—the income if acreage cutbacks were not in force.

Farmer B with livestock had an average of 1,170 acres of cropland, and 1,500 acres of noncropland. About 1,000 acres of this was range. Also, he had water and buildings necessary for a cow-calf operation.

Here are his estimated incomes from different uses of diverted acres:

Diversified Acre Use	Income	Wheat Income
	Dollars	*Per Cent*
All wheat	$15,198	100
Barley (cash crop)	12,405	82
Grass with cattle	10,298	68
Grain hay and pasture	9,385	62

The economists point out several things from the above tables:

¶ Cattle are an alternative for Farmer A just once, but are included in all of Farmer B's possible operations. Size of cattle operation was not fixed—but was adjusted to the current feed supply. It varied from 26 cows for the grass-cattle alternative for Farmer A to 59 cows for Farmer B.

¶ Those like Farmer A (without cattle, or cattle facilities) suffer a larger income cut than those like Farmer B (with cattle).

¶ Cost of shifting to a cattle enterprise is so high (about $6,000 for fences, buildings, water development, etc.) it keeps many like Farmer A from getting into the cattle business.

¶ Wheat costs don't drop at the same rate as acreage cutbacks. Depreciation, for example, remains about the same. This is true even when diverted acres are left idle or seeded down for conservation.

Reasons for barley

Ruling out cattle as a profitable income possibility, the best alternative for Farmer A is barley. There are several reasons for this.

1. Barley incomes now are higher than any other alternative, such as livestock or leaving land fallow.

2. Barley costs per acre are about the same as wheat. In this situation, barley prices could drop to about 30 cents a bushel before farmers could drop to the next least costly alternative—keeping the land idle.

About two-thirds of the wheat farms are like Farmer B's—they have livestock-handling facilities. Their cattle numbers range from 15 to 30 cows, smaller than figured in above estimates. This would not change the ranking of alternatives, but may change income.

Barley would still rank first as a cropping alternative for those with livestock facilities. The economists estimate barley could drop about 40 cents a bushel (to 55 cents) before these farmers could use diverted acres to profitably enlarge cattle operations. Put another way, $22 feeder cattle are needed before forage can profitably replace 92-cent barley on diverted acres. The table will give you more "break-even" cattle-barley prices.

There is more to consider in handling diverted acres than income. The economists point out that "flexibility"—the ability to shift easily in and out of different types of farming is important. Although grass for soil conservation ranked low, soil conservation is still important. It depends on how much you emphasize possible income, soil conservation, or flexibility of the various alternatives.

Cattle Prices Needed to Justify Switch from Barley to Grass on Diverted Acres

Barley yields per acre	Barley prices per bushel					
	$ 1.05	$ .95	$ .85	$ .75	$ .65	$ .55
Bushels	*"Break-even" cattle prices, $ per cwt.*					
24	23.85	22.13	20.41	18.69	16.96	15.24
22	22.35	20.62	18.90	17.19	15.46	13.73
20	20.84	19.12	17.40	15.68	13.95	12.23
18	19.34	17.61	15.89	14.18	12.45	10.72
16	17.83	16.10	14.39	12.67	10.94	9.22
14	16.33	14.60	12.88	11.17	9.44	7.71

Here's an example of how to use this table. If diverted acres yield 20 bushels of barley per acre, and the price is $.95 per bushel, feeder prices must be $19.12 before it pays to switch from barley to grass.

Research Briefs

Kill Velvet Grass in Lawns • **New "Minute-Mix" Cake Recipe** • **Control Stomach Worms in Sheep**

Chemical Controls Velvet Grass in Seed Crops and Lawns

A CHEMICAL that will take both velvet grass and broadleaf weeds out of bentgrass and Alta fescue has been found by agronomists Norman Goetze and Bill Furtick.

The chemical, a relative to CMU (Chloro-Methyl-Urea), will be sold under the trade name "Karmex DW." Don't confuse with Karmex W. That's another chemical.

Tests at the J. J. Astor branch station and at a bentgrass grower's field near Clatskanie showed 4 pounds of the actual material killed almost all velvet grass without harming the bent.

Applied in October

1953 results were: no chemical, 119 velvet grass plants per square yard; Karmex DW at 4 pounds, 3 plants. Other chemicals tested either failed to control velvet grass or lowered bent seed yields. The agronomists mixed the material in water at the rate of 30 gallons per acre.

The chemical was applied in October.

Other trials with Alta fescue gave similar results.

For home lawns, control is possible, but caution is recommended. The material is a soil sterilant, so it's important not to overlap spray patterns. Also, the agronomists recommend using only 2 pounds per acre (1½ ounces in a gallon of water will cover 1,000 square feet). After spraying, your lawn probably will turn brown, but should bounce back next spring—without velvet grass. Spray anytime from October to December. *Be sure your sprayer will spread the material evenly.*

For seedlings, the researchers found the 2 pounds per acre rate is safe on Alta fescue only. For bentgrass, wait until the crop has become well established.

Controls broadleafs, too

Karmex DW also is a good control for both broadleaf and weedy annual grasses in the above grass seed crops plus creeping red fescue. Use at the 2 pound per acre rate, and apply in October.

The agronomists suggest not using the material unless your spray tank has a mechanical agitator. Karmex DW is a wettable powder that settles. Unstirred, settled, spray material may kill weeds at the start, kill nothing at the last.

Furtick points out that Karmex DW has been cleared by the Food and Drug Administration for trial use only. Complete clearance—for using grass that has the chemical's residue as a livestock feed, for example—is pending.

Treating Worms Increases Lamb Gains, Grade

FATTENING LAMBS treated for stomach worms gained more and finished better than untreated lambs. That's the result of a year's trial using a phenothiazine drench, according to veterinarian Paul Allen and animal husbandman J. E. Oldfield.

Forty crossbred feeder lambs were placed in identical pens and fed similar rations. Half were treated November 8 with 2 ounces of phenothiazine drench. It was repeated two weeks later. The drench was prepared by adding 1 pound of phenothiazine powder to 1 quart of water.

SHEEP DRENCHED with phenothiazine gained four times as much as sheep not drenched, also graded higher. The drench was made by mixing 1 pound of phenothiazine powder with 1 quart of water.

Treated lambs gained fourfold

Animals were taken off feed and marketed January 17. Treated lambs gained an average of 13.5 pounds each, untreated lambs, 3.1 pounds.

More striking, say the researchers, was the higher carcass quality of the treated lambs. Seven graded choice, 13 good. Of the untreated lambs, 2 graded choice, 11 good, and 6 utility. There was one death in the untreated group.

Both groups dressed out about the same—50 per cent.

Parasite counts after slaughter averaged about 390 worms for each treated lamb, 1500 for each untreated lamb. Those in the lowest grade had the most worms.

New "Minute-Mix" Chocolate Cake Recipe Developed

OSC HOME ECONOMISTS Andrea Mackey and Kyriake Valassi have developed a cake you can mix in 1 minute. This short mixing time is less than that required by any other recipe or mix on the market.

The researchers noted these facts while developing this recipe: cake texture is improved by using a high proportion of milk solids and by homogenizing the milk; by using alkaline-processed cocoa, and by mixing at fast speed. For homemakers who enjoy the flavor of old-fashioned cake, but who do not like to spend time on creaming, the new Minute-Mix recipe will produce a fine quality cake with the least time and energy.

YOU CAN BAKE a cake that looks like this with 1-minute mixing. Just follow recipe and directions. Cake has old fashioned flavor, but saves time normally spent in creaming. Cake is fine-textured, too.

Recipe

- 2⅓ cups cake flour, sifted before measuring
- 1½ cups sugar
- 1¼ teaspoons baking soda
- 1 teaspoon double action baking powder
- 1¼ teaspoon salt
- ½ cup bitter cocoa, alkaline-processed

Sift the above ingredients together. Place in small mixing machine bowl. (1½ to 2 quart). Smaller bowls may be used, but avoid splashing when mixing is started. Add the following ingredients:

- ¾ cup vegetable shortening
- 1 egg, medium size
- 1⅓ cups evaporated milk
- 1 teaspoon vanilla

Directions

Start mixing at slowest speed. After 5 to 10 seconds, move speed control to fastest position. Continue mixing at fast speed 50 seconds. Total mixing time: 1 minute. Line bottom of two 9-inch cake pans with wax paper. Pour batter into pans. Tap pans sharply two or three times. Bake at 375° F. (moderately hot oven) 25 to 30 minutes. Cool a few minutes. Loosen edges and turn out of pans. Put layers together and cover with your favorite frosting.

Save Fall Tillage and Soil on Wheat-Pea Ground

WHEAT GROWERS in eastern Oregon's wheat-pea area can forget about two fall "spring toothing" operations.

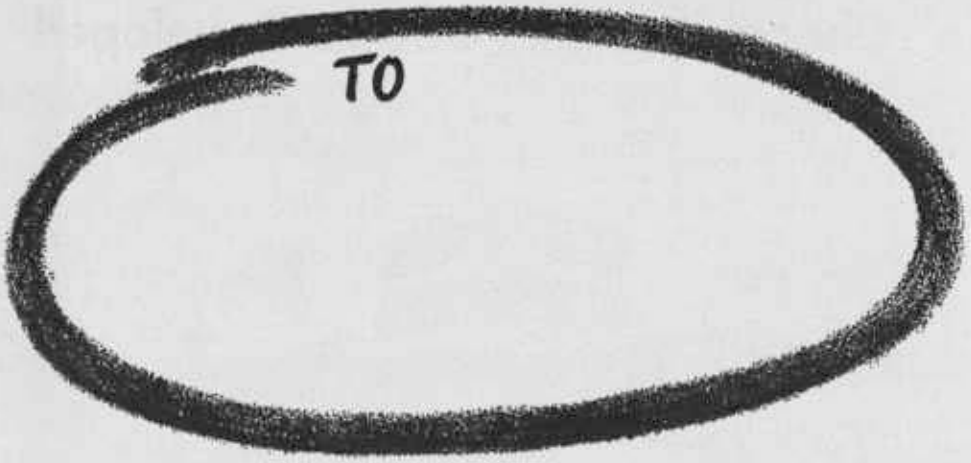
Ted Horning, agricultural engineer at the Pendleton Branch experiment station, says two years' tests at the Crow pilot farm near Weston show that wheat seeded in ground left rough after pea-harvest plowing will yield just as high as wheat sown on a fine-tilled seedbed.

WHEAT SOWN here yielded just as much as wheat planted in fine-tilled seedbed. Ground is rough—just as it was after pea-harvest plowing. Besides cutting costs, rough tillage helps prevent erosion.

In 1953, Elmar winter wheat seeded after peas on rough-tilled plots averaged 53 bushels per acre, compared to 51 bushels for tilled plots. In 1954, the story was about the same. Using a sweep didn't change yields either—rough, plowed, and swept plots all averaged about 56 bushels.

Besides saving on costs, rough tillage has another advantage, according to Horning. There is less water runoff and erosion on rough-tilled plots. Clods varying from 1 to 2 feet cluttered the test area after seeding which helped slow the runoff.

All plots were seeded at 65 pounds per acre in late October. Forty pounds of anhydrous ammonia was added before seeding.



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Farm Outlook . . .

(Continued from page 3)

But we shouldn't need $20 hogs to make money. With barley at $40 a ton, we should come out all right, especially on farms with extra grain and labor, with hogs around $15 a hundred pounds. That should cover all costs including the producer's own time and money, according to surveys and studies made by O.S.C. research economists. Probably prices received by Oregon farmers will hover around the "break-even" point much of the time during the next year or two.

Later, hog numbers in the corn country are likely to turn down again. Then, until the cycle repeats itself, prices should move above "break-even" points much of the time. That would mean extra money for Oregon farmers who get started in the hog business soon and stay in during the latter part of the 1950's at least.

Sheep & lambs

Next year, part of the wool incentive payment will be invested in a "self-help" program. To promote markets, sheepmen have approved use of 1 cent per pound of wool and 5 cents per hundred pounds of lamb sold. This will provide more than 2 million dollars in 1956.

Nationwide promotion of lamb should pay off in time. Many have either forgotten how good lamb can be, or never knew.

Meanwhile, lamb prices this fall and winter are likely to be about the same as last fall and winter. Large supplies of beef and pork are against much improvement even though marketings may run a little smaller.

Dairy products

The squeeze on incomes may put farmers to milking more cows again. National milk production this year will come close to last year. Oregon's total is likely to be down a little.

Consumption of fluid milk, butter, cheese, and ice cream is up some over last year, but the government must still buy sizeable amounts of dairy products to support prices. Returns on labor used to produce factory milk in Oregon seem likely to be small for some time to come.

Chickens & eggs

Most signs point toward some further rise in Oregon egg prices this fall. They are likely to average at least 10 cents a dozen above last fall's low levels.

The number of layers on farms so far this year has been larger than the same time last year. That will change soon. By January 1, the number of layers probably will be at least 5 per cent smaller than a year earlier. A higher rate of lay may keep production close to last year.

Broilers may run into trouble before the year is over. Broiler markets are usually weak in November and December and chick placements have continued large. Fewer fryers from laying flock replacements and less culling of hens, plus high wages and employment, have helped poultry markets this year.

Turkeys

Don't count on the usual holiday rise in hen turkey prices. The large late hatch makes a rise this year less likely than usual. This looks like the year to sell when toms, as well as hens, reach good marketable condition. Strong consumer demand and the small stocks of frozen fowl are the brightest spots in the turkey situation right now.

Save the usual number of good breeder hens if you are fixed for this business. Call for turkey hatching eggs next spring is likely to be quite good, unless late birds hit the market harder than now seems likely.

Potatoes & onions

It's pretty clear now that the Southern freeze last March did potato growers more harm than good. That freeze set the scales for sharp advances in prices as the last of our 1954 crop was going to market. In turn, this stimulated larger plantings in California, Idaho, Washington, and to some extent in Oregon and a few other states. Now we have fairly good yields in most states, too, and more potatoes than can be sold at prices satisfactory to growers.

Diversion programs and marketing agreements seem to offer most hope now. Even so, these are likely to be much less effective than holding the line at planting time.

Slightly smaller plantings this year and a little bad weather are helping to bring onion prices back into the favorable column. The storage deal should work out better than it has the past two years.