

# *Ranchers, Ranges, and Cows*

FEDERAL COOPERATIVE EXTENSION SERVICE   /   OREGON STATE COLLEGE   /   CORVALLIS

Cooperative Extension work in Agriculture and Home Economics, F. E. Price, director,  
Oregon State College and the United States Department of Agriculture cooperating.  
Printed and distributed in furtherance of Acts of Congress of May 8 and June 30, 1914.

EXTENSION BULLETIN 772

MARCH 1958

# Foreword

This is the second in a series of Oregon Extension bulletins on ranges and range management. The first was "Grass is the Wealth," Oregon State College Extension Bulletin 770. It covered some principles of grass growth. This bulletin, "Ranchers, Ranges, and Cows," is about livestock in relation to range feed. It refers to cows in its title and content, but nearly all the information is equally applicable to sheep.

## Contents

	Page
Foreword .....	2
Troubles in the Factory .....	4
Essentials of a Successful Meat Factory .....	7
A Year-round Plan Is Needed .....	11
A Rancher Is Lucky in Some Ways .....	11
Summary .....	12

---

Elgin Cornett, Deschutes County Extension Agent, Redmond, Oregon

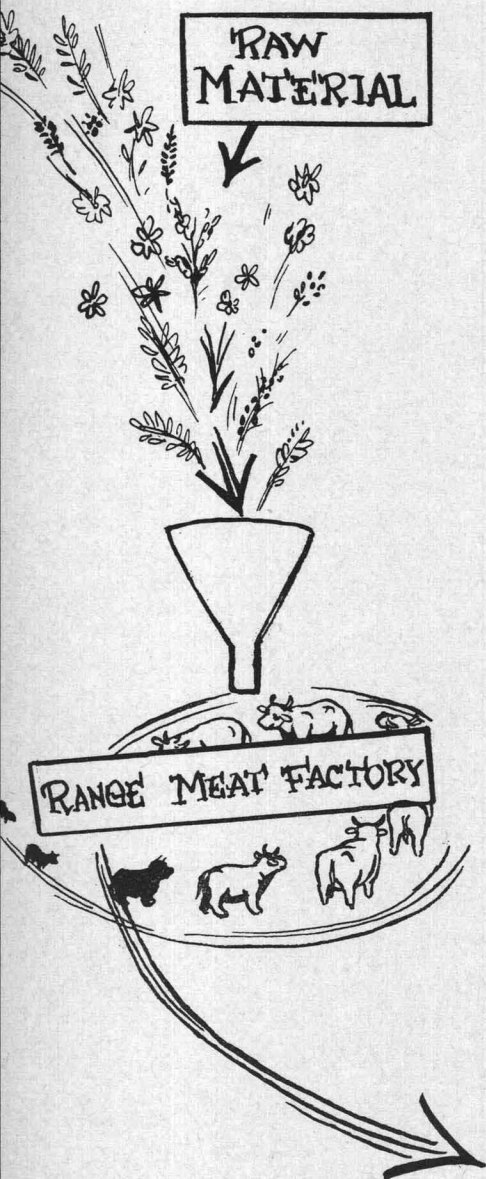
Art Sawyer, Superintendent, Squaw Butte-Harney Experiment Station, Burns, Oregon

C. E. Poulton, Associate Professor of Range Management, Oregon State College, Corvallis, Oregon

Joe Johnson, Associate Professor of Animal Husbandry, Oregon State College, Corvallis, Oregon

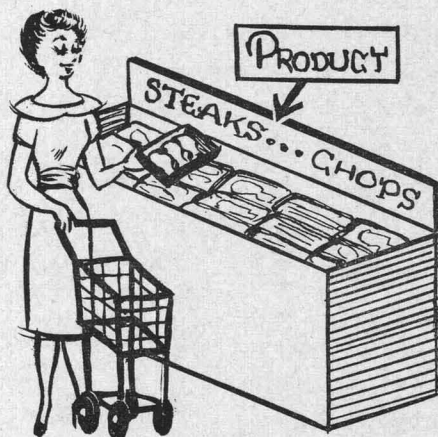
E. R. Jackman, Extension Range Management Specialist, Oregon State College, Corvallis, Oregon

# Ranchers, Ranges, and Cows



Every factory produces something to sell. It uses tools and skilled labor to convert raw materials into some other product. The manager prevents wear and waste and keeps things moving. The factory fails unless the raw material comes along evenly, and it still fails unless the finished product is uniform and saleable.

Every cattle rancher is in the business of producing something to sell. He is a factory manager. His raw materials are feed, his factory is his herd, and meat is the finished product. He uses foresight and planning to provide raw materials throughout the year. The rancher is in competition with every other rancher. If his costs are higher, or his product poorer than the average, he'd better check in his chips and hunt another game. This points to why range is important—it carries the lowest price tag of any of the raw materials used in the meat factory. Thus, the man with good range making up a high percentage of the meat he sells can usually beat a competitor who sells meat mostly built from grain and hay.





# *Troubles in the Factory*

## **Raw products may be slow in arriving, or of poor quality.**

Balanced rations are important to the meat factory. Raw materials contain protein, carbohydrates, fiber, calcium, phosphorous, fats, minerals, water, and many minor things. A production slump comes if there is shortage of only one of the nutrients in feed, or if the supply of nutrients is out of balance. In nature, the ratio of one nutrient to another in range feeds changes drastically from spring to fall. Also, as the seasons change, the total available amount of each nutrient in a mouthful of forage is likely to change.

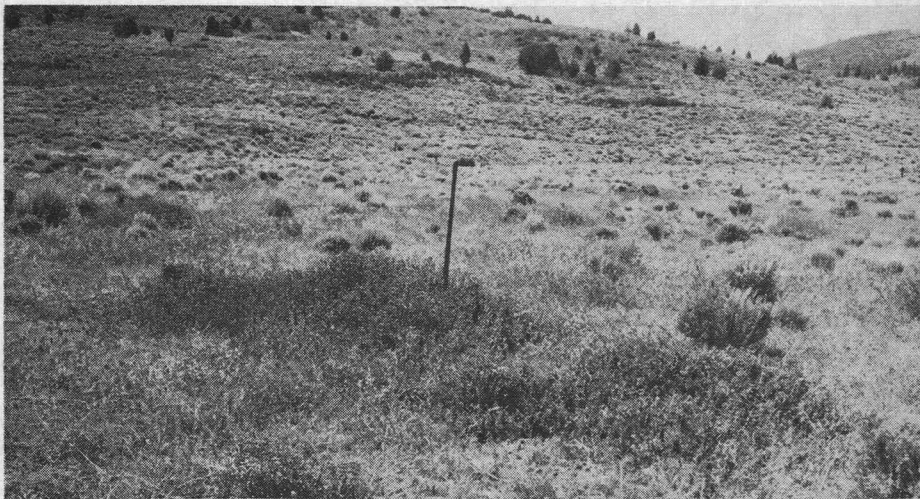
This factory has a nearly constant demand for protein and energy, whereas the nutrients in grass change radically with the seasons. In early spring, grass is weak and thin for growing animals or cows with calves. It is long on protein, short on energy.

Late spring usually finds these raw materials in the grass reasonably well balanced with the needs of the animals. Late summer fades out grass protein and by fall it is nearly all gone. It is now long on energy, short on protein. At this time a cow will be nursing a growing calf and also building a fetus or new calf. This is a double load at the time forage strength is dropping. It seems as though nature slipped a cog, but maybe she planned all this before super-markets and city consumers were invented.

## **The factory may be poorly maintained.**

Wintering stock cattle is factory maintenance, getting ready for a production job on cheaper raw materials in summer. It takes ample protein, ample fiber, and other nutrients to hold thrifty condition. Sometimes hay is not

Plants of Normad alfalfa on severely overgrazed range, Klamath County. All perennial grasses were killed by overgrazing, but the alfalfa was not. Alfalfa keeps its protein late in the season, but grass does not.





equal to the wintering job if it is over-mature or poorly preserved. Much as with a bank account or a pocket, you can't get any more out of a haystack than you put into it.

A factory manager can handle both good and poor quality raw materials if he is skilful in making the good ones reinforce the poor. Capacity of a cow to hold plenty of forage in the grazing season is also valuable in the winter to handle average quality hay. Ordinary grass hay properly cared for, has enough protein to maintain a beef cow if she has large capacity. Poor hay will not maintain body weight without a protein supplement. Suppose a man were to try to keep up his weight wintering on nothing but cabbage. It's good food of its kind, but he just couldn't eat enough of it. By spring he'd have a lean streak in his bacon.

Overfat beef cows are wasteful and expensive machines. Cows should be thrifty and strong, but not fat. "Tail-ing up" may be good exercise for the cowboys, but not for the cows. The weak ones must waste time in a body-repairing job when feed gets plentiful. Profit comes from best use of grass, the cheapest feed. The cow must be in best condition to take advantage of the cheap grass. Good condition results in strong, fast-gaining calves. A factory wouldn't use silk for a product where cotton would be better. Overfat discourages aggressive foraging out on the range, but overweakness means wasteful repair and less meat to sell.

So winter maintenance helps the cow during the first month or two on the range, and helps in getting big, healthy calves.

### **Old-style factories are out of date.**

Forage is the stuff marketed in a beef cattle or sheep operation, so the

harvesters of this forage should be up to date. Livestock are similar to assembly line workers in that some seem to be working but accomplish little. Some cattle, for instance, gain twice as fast as others, and some produce a pound of meat on less than half as much forage as others. It so happens that rapidly gaining animals also tend to be efficient gainers and they usually pass on this know-how to their offspring. Therefore, one of the most effective ways to send more forage to market as meat, is to cull out the star boarders. With an improved herd each pound of forage is used to best advantage. Just as in business and industry, a smaller number of highly efficient workers can produce more at less cost than a large number of goldbricks.

### **There may be too much factory for the raw materials.**

Pressure for more income has caused many a manager to increase factory units (animals) faster than his raw material justified. His sales organization outstripped his production arrangements. *Overgrazing is underfeeding* and the problem is how to produce more forage on the land. Usually a manufacturing business can find ways to get more raw materials. A rancher can do it, too.

### **It's hard work to balance cattle needs with the needs of the grass.**

The annual cattle-grazing cycle on the range is not parallel with the grass growth cycle. *This unhappy conflict is the basic problem of a beef factory manager.* He must look for management methods that will harmonize the two demands. The cows eat every day, but grass, the main raw material, grows only part of the year. Worse, the forage varies in quality with the season. Still worse, what is good for the cows may not be best for the grass. For top

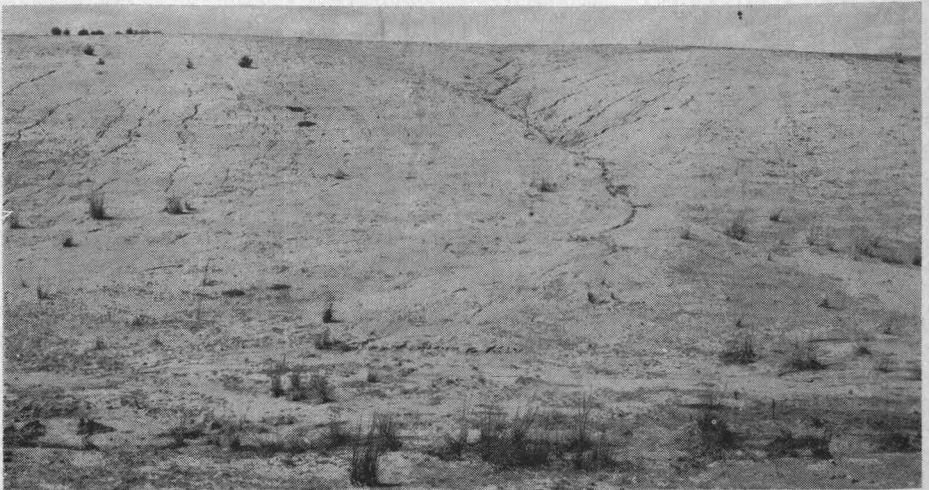
grass production, the grass must grow up well before it is grazed off and there should be plenty left on the plant. This builds strong healthy plants. Unfortunately cattle needs are greatest and forage cycle is weakest in the early spring. *In years of low rainfall, grass may never recover if eaten to the ground in April.*

Forage is high in growth factors when green, high in energy when cured on the stem. But when cured, forage generally falls below the needs of the animal. A cow needing a pound of protein a day can get it and still spend most of the time lying down if feed is lush and tests over 10% protein. But when that feed ripens, and protein drops to 2%, she would have to eat five times as much—and her stomach won't hold that quantity, so even if feed seems plentiful in the fall, the animal may be losing flesh. If a factory needed iron and copper for a product, and it had only a fourth as much copper as it needed, it wouldn't help much to furnish more iron.

Also, the water in the forage changes. In the spring the forage is succulent and a cow may need 80 pounds a day to get 10 pounds of dry matter. But if turned out too early, when grass growth is small, cows just aren't fast enough to gather that much. They'd have to travel like sprinters. So animals on spring grass often lose weight. At the grass peak, in June, food and needs of the animal are well in balance on a good range.

In late summer and fall the meat factory most often gets off stride. Raw materials are less plentiful and poorer in quality. The calf in the cow is bigger and the yearling steer needs more for maintenance. The wise manager has stockpiled some feed on the ground by reserving a pasture not used at other seasons, or by cutting and bunching some feed cut early, or by having an irrigated field rich in aftermath. The dry summers in Oregon make ranching different than on the Great Plains, where summer and fall are the rainy seasons.

**A cow can't run fast enough to get enough feed in the fall on a poor, starved range. The grass on a range like this means thin cows and small calves. Nor can the cow run fast enough in the spring to get enough feed if turned out too early.**



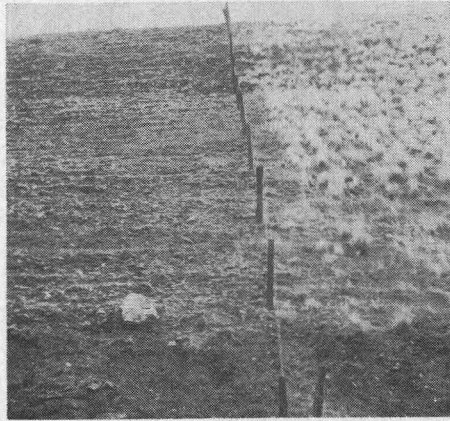
# Essentials of a Successful Meat Factory

Just as a manager cannot manage a certain part of a factory without regard to others, a rancher cannot develop an efficient range livestock program without attention to all of the factors contributing to success. The essential factors include proper season of use, proper livestock distribution, the right kind and number of livestock, and an overall plan.

## **There must be proper season of use.**

Season of use is determined by the plants, not the owner. If the owner doesn't pay attention to plant needs, the plants will die. The most important thing is to *make sure forage growth is ahead of animal demand*. A worker on the assembly line can't do a good job if he has to spend half his time running around to find the pieces he is to assemble. So it is with the grazing animal.

If a rancher is in a bind on early feed, he might consider grazing hay meadows; seeding desert wheatgrass (formerly called crested wheatgrass) on good lands for early spring use; pasture winter wheat or rye early; or just plain haul hay a little longer. Both cows and cowboys get tired of hay and both often demand use of the spring ranges too early. But the wise manager will talk them out of it and will feed longer until the forage plants get ahead of the animal needs. If this is done, a range soon will be turning off more pounds and the buyers will be more eager to buy. In the early spring a range won't carry over half the cows it will carry later on, and if a man tries to make it do so, both range and cattle get poorer. So does the owner.



The owner of the range on the left of the fence tried to carry too many cattle and turned them out too early. Note how erosion is causing the rocks to "sprout."

In the late season when forage quality runs down, it is a good scheme to use cool north slopes and higher elevation ranges. Seeding of late-maturing grasses, where adapted, works well. Timing is important in the best use of browse areas. Browse keeps its protein well into the fall, so it is most valuable then as a supplement to low protein, dry grass. Grazing habits of the animals can be an indication of their seasonal needs. When cows switch from grass to browse, or to bunched hay, they are looking for richer feed. Hay bunched on meadows, when it is green, will keep a higher protein level than standing grass allowed to mature. Cattle will avoid the hay until late summer and then make good use of early-cut, bunched hay. Of course, feeding a protein supplement can be valuable to hold the cow together when forage quality on the range is low, but generally the same

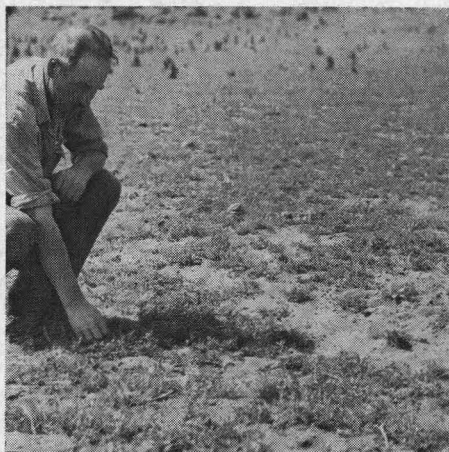


job can be done more economically by growing protein at home. Protein supplements from the store cost more than homegrown protein obtained by cutting some swale or meadow in late June. The new grazing alfalfas help in this protein battle because even if they are dry, they keep their protein far better than grass.

**The cattle must be distributed to use all the area.**

A man doesn't get much return on taxes, lease, or grazing fees paid on unused range. Unfortunately, some livestock are too much like children—they form bad eating habits. Just one cow on a thousand acres may overgraze a spot she is in the habit of eating from. Cows do the least work possible in getting a fill. The slope and lay of the land also strongly determine how an animal grazes. A cow may walk right through good feed on a steep hillside to find poorer feed on level land above.

Charles Trachsel, Sisters, Oregon, inspects some Nomad alfalfa. In spite of nearly continuous grazing, the alfalfa furnishes far more pasture than grass seeded alone—and it keeps a high protein content.



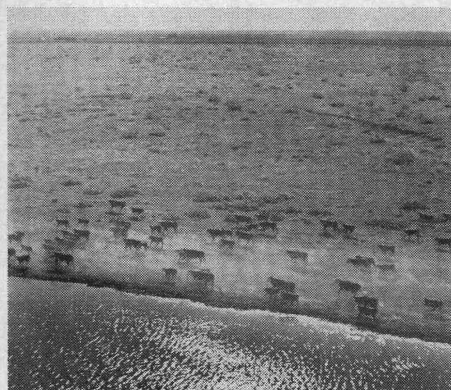
Sheep with a wise herder have the distribution problem whipped, but an inexperienced herder may shy away from places where herding is difficult. The way to make his job easier is by water development, water hauling, working out a logical system of camps, routing over the area to be grazed, and occasionally by clearing short drive-ways to give access to good feed cut off by timber or rimrocks.



**Bitterbrush is worth plenty on a range. The cattle turn to it in the fall when grass is dry and low in protein.**

Many tricks can be used to get all the usable grass, and yet avoid damage by overconcentration. Some cattlemen never turn out a large bunch in one place, but scatter them at once to all parts of the pasture. Time is well spent riding to herd them off the easy acres. A relatively large herd will cover a small pasture evenly, but should not be left there long enough to overdo it.

Salt and shade may be useful to keep cattle scattered properly. Also, salt, water, and shade may starve a cow by keeping her from finding food. More watering places may be needed to get the stock on unused grass. Water holes to catch and hold water are possibilities. Pipelines, springs, wells, and hauling



Water often is the keynote to good range management. If the steer has to walk off a pound of flesh going to and from water—that's a pound the rancher can't sell. There can't be too many water holes.

water, are all useful. Fences can aid in getting good distribution. Range types may be fenced separately. A rancher can tell better than anyone else how his stock move on their customary pastures. Since growth is different on the north and south slopes, a fence along the ridge is often a big help. Fencing to protect a reseeding project is best when planned as a permanent management fence.

There is cost advantage in fencing large fields for range reseeding. A man could go broke by getting too enthusiastic and fencing too many small fields.

### **Numbers of stock and amount of feed must balance.**

But let's get back to our factory. What determines the number of assembly lines in operation? Two important things: first, the amount of raw material and the way it flows through the factory; and second, the market. In grazing management the first of these things, the raw material, is most important because the final weight of the animal is determined by how it is

fed. If it is a good animal *and* fed well, it will produce a quality product that will be easier to sell.

So, how much stock? It rarely pays to run an assembly line at sharply limited capacity. It takes a certain amount of product to pay the fixed costs of operation, and profit lies in producing above that. Grazing livestock need just so much feed to hold their own, just as a car engine is using gas whenever it is running, even though the car is standing still. The profit comes from forage eaten over and above the maintenance ration—the part that produces a new calf, or growth and finish on the yearlings.

The most critical feed period during the year should determine the number of animals. If feed is short in summer, for example, a big pile of hay for winter doesn't help much. Then if more feed is supplied for the critical period, the cow numbers can be increased, but not before.

New land is hard to buy, and may not be available at any price. Most ranchers will find it costs less to grow more feed on the acres they already own. Sagebrush lands with fair perennial grass cover may double up the feed if the brush is killed and good range management follows. Grass yield is bound to be small if something else uses up 90% of the moisture and soil nutrients. Soil is like the New Englander's cow, "She's a durn good-natured critter, and she'll give all she kin." Good soil will pay for a brush control job or for seeding where necessary.

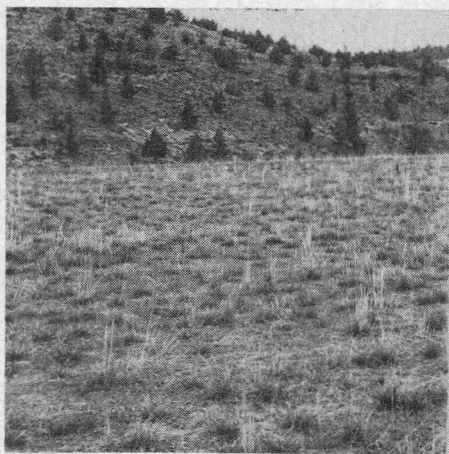
Here are some ways to improve feed supplies. Some hay meadows can be grazed longer in spring without decreasing total yield. Meadow fertilization may increase hay yields enough so that part of the hay land can go into



One acre of desert wheatgrass (formerly called crested wheatgrass) for every 20 acres of dry range is highly recommended as the goal for nearly every Eastern Oregon rancher. Or an acre for every cow also is suggested.

pasture. If it takes 200 acres of hay at a ton to the acre to feed the cows all winter, then it only takes 100 acres yielding 2 tons to the acre. That leaves the other 100 acres for irrigated pasture production, and it helps even out the raw material supply for early spring and summer. Opportunities exist on many farms to make productive pastures out of odd corners and bottom lands. These can make a world of

This shows the sensible way to seed. Seed the level land which has deep soil and leave the steep, rocky soil.



difference in range management if the advantage is passed on to the range by keeping the stock off, to allow the native forage to get ahead of the animals. If permitted to get ahead, it will stay ahead and feed them well. Livestock understand this kind of arithmetic, and the range appreciates it, too. If part of the animals are pulled off the range, or turnout is delayed a few weeks, the range will respond by producing more.

Now here's a final, important gimmick in balancing up the meat factory. There must be enough feed to provide these three things before adding another assembly line (cow or ewe):

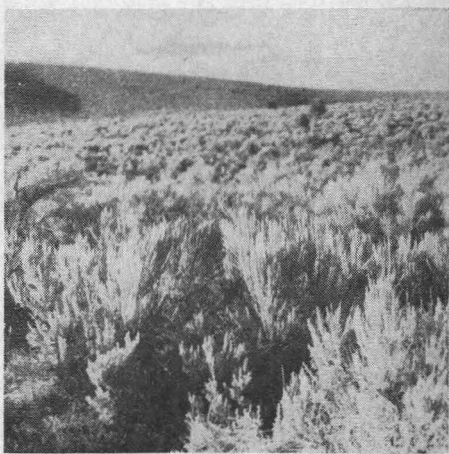
1. Enough feed to meet the normal maintenance need of the animals added PLUS

2. Enough new feed to provide a good growing and finishing ration for the added animals.

PLUS

3. Enough forage left over to feed and protect the soil and feed and protect the grass plants.

This range can't be helped much until the sage is destroyed either by use of chemicals, fire, or mechanical means.





## *A Year-round Plan Is Needed*

To eat the grass and have it too, needs year-round planning. If a rancher pays attention to these essentials of grazing management—proper season of use, good distribution, and proper number of high quality animals—he is well on the way to better ranges. But he is not through until he has tied it all together with a good rope called “Range and Livestock Management.”\*

Unfortunately there is no fixed pattern tailored to all ranches. A man can't read a book or a bulletin such

as this and instantly step out as a ranch operator deluxe.

So if there is no “Plan No. 42” or “Eastern Oregon Special,” where does one start? In individual cases, a new plan of management will have to start with range seeding or with brush control, but in others more winter feed is needed. In others water development and fencing are most important. In still others, the logical starting point will be with a herd improvement program.

---

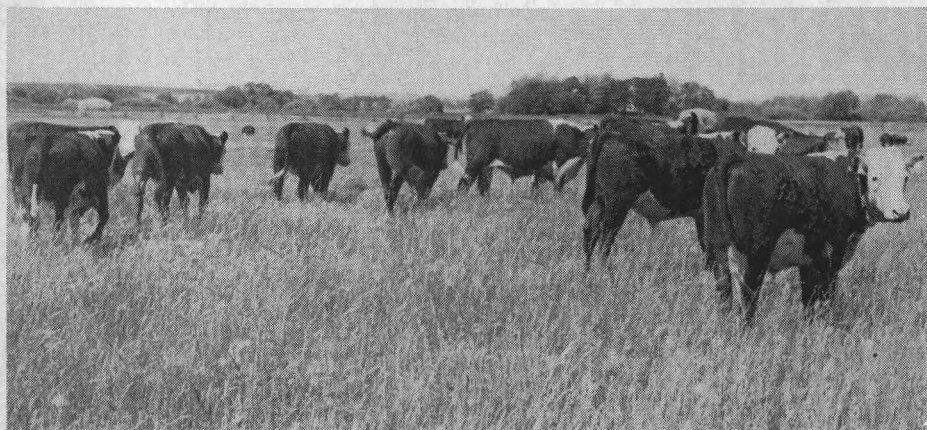
\* See “Range Cattle Management,” Oregon State College Extension Bulletin 640.

## *A Rancher Is Lucky in Some Ways*

In reviewing his meat factory the rancher has some things in his favor. The cattle won't strike nor demand time-and-a-half for work after hours. So far, no new invention has rendered

the factory worthless or obsolete. Cattle don't get sore over jurisdictional matters, and they don't stage sit-downs nor slow-ups if they can help it, but they surely believe in incentive pay.

Irrigated pastures can take the pressure off the range by furnishing early spring and late fall feed, thereby letting the dry ranges get a good growth to revitalize weakened grasses. The steers shown here obviously are being well fed.



## Summary

1. A range livestock operation is a meat factory with many problems in common with other manufacturing plants.
2. The raw materials for the meat factory are range feed, winter feed, and any supplementary feeds that are used.
3. These raw materials may not be available at the right time, or the various elements (protein, carbohydrates, etc.) may be out of balance.
4. As the seasons change, the composition of range feed changes drastically, sometimes upsetting the meat production schedule.
5. Winter rations for breeding cows are usually for maintenance only, but if poor, may not be able to maintain weights.
6. Herd improvement is the same as bringing an old factory up to date. Rapid-gaining animals usually are the most efficient gainers.
7. Cow numbers should be increased only after feed supplies are increased.
8. The cows eat every day, grass grows only part of the year—this is the fundamental problem of the range man.
9. Forage in the early spring is long on protein, short on energy; in the fall it is long on energy, short on protein. In late spring it is about right. Animals' needs are therefore not always met in spring and fall.
10. Essentials of a successful meat factory are:
  - Proper season of use
  - Proper distribution of livestock
  - The right kind and number of livestock
  - A good year-round planEach of these essentials needs thoughtful attention.
11. The rancher has some disadvantages in running his meat factory as compared to operators of other kinds of factories. But he has some advantages. The cows do not strike, but they believe in incentive pay.