# Oregon's Agricultural PROGRESS

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# PROGRESS

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**COVER STORY:**

**A 15-year study of pheasants by OSC's cooperative wild life unit exposes 5 fables about these game-farm reared birds. Read this story on page 8. (Photo by Jim Hosmer)**

CONGRESS and the Administration have acted. We are now living and working under a "changed" farm law.

It's not a new law. The 1954 Agricultural Act is much like the 1949 Act. But it's changed from the law of recent years in some important respects.

What do the changes mean to you, an Oregon farmer? When the clouds of confusion generated by all the talk about "flexible" vs. "rigid" supports are cleared away, we can see that the changes mainly mean (1) higher prices for your wool, (2) a narrow range of prices for feed grains you buy and sell, and (3) lower prices for wheat. These are the bigger things.

The changes mean a few other things, too—like a small increase in your wheat allotment if you are on a wheat-fallow farm and were taking a cut greater than the national average. Then, too, potatoes are again eligible for price supports when needed and the government has a freer hand in disposing of surplus foods, especially wheat and dairy products.

**Wheat**

Under the new law, wheat supports for the 1955 crop drop to 82½ per cent of parity because of large supplies. The Secretary has announced that next year's loan rates will be intended to reflect to growers an average not less than $2.06 a bushel. That was 82½ per cent of wheat parity at mid-August and

**BARLEY & WHEAT—you'll see more of this in the Columbia Basin wheat country next year.**

by Agricultural Economist M. D. Thomas

# Farm Outlook

is 18 cents less than basic support for the 1954 crop. If wheat parity is above $2.50 next June, loan rates will be raised. Final rates will be announced about July 1.

Regardless of what happens to supplies, wheat supports are almost certain never again to provide the purchasing power they have made possible in recent years. The new law not only permits wheat supports to drop as low as 75 per cent of parity, but also provides for a gradual shift from the "old" to the "new" method of figuring parity. The new method lowers the parity price about 15 per cent. The shift from old to new is limited to steps of 5 per cent a year. Parity is now figured by the new method for practically all except the six basic crops (wheat, corn, cotton, tobacco, rice, peanuts). By 1960, support prices for wheat could be around 70 cents a bushel under the 1954 level, if conditions remain as they now are.

If quotas are not approved when supplies are large, wheat supports drop to 50 per cent of parity under present law. At today's levels, that would be $1.25 a bushel.

Congress promised further consideration of other proposals for dealing with the wheat question. Special attention is expected to be given the "two-price" or "income certificate" plan long favored by many Oregon farm leaders. A wheat growers' vote on this plan passed the House but was withdrawn from the 1954 Act when the Senate asked for more time to study.

### Feed grains

The Commodity Credit Corporation now has authority to sell its surplus feed grains at prevailing support prices, plus 10 per cent. This can keep feed grain prices from going above parity as long as the government holds surplus corn. This, coupled with authority to "flex" corn supports down to 75 per cent of parity, will limit fluctuations in feed grain prices. Corn prices indirectly affect Oregon barley and oats prices. Supports for barley and oats remain at the discretion of the Secretary.

We have a record feed grain supply in sight in Oregon and the nation this year. Unless drought gets worse, we shall have even more next year. Oregon has around 50,000 additional acres being held out of wheat in 1955. Nationally, the cut in wheat and other controlled crops is likely to increase by at least 7 million acres. Most of this land will go into barley, oats, sorghums, and other feeds.

The build-up in feed crops brings storage space back close to the head of the list of farm problems for the near future. Eventually, feed means more livestock. The increase in pigs is on its way, but is not likely to keep pace with feed supplies.

Bad weather brought some bargains in barley and oats for a short time this fall, but prices were generally higher than expected earlier. Crops locally and nationally were large; but support prices, coupled with storage and the effects of the Midwest drought on corn, put strength into feed grain markets.

### Livestock

***Beef*** price stability in 1954 may be followed by a moderate downdrift in 1955. This is almost certain unless the fall pick-up in employment and income lasts longer than seems likely. Cattle are holding near record numbers despite heavy marketings and some liquidation of herds in drought areas.

Larger supplies and lower prices of pork will begin to tell on beef in 1955, too. If you are overstocked, or on the margin in beef, this fall should be a good time to adjust. If you are doing all right, stay with beef; but remember,

*(Continued, page 16)*

**EQUIPPED with thorny, 8-foot-high limbs, gorse has emerged as a public enemy along Oregon's coast.**

# GORSE CAN BE *Controlled!*

A legume imported as an ornamental in 1894, gorse now covers 25,000 acres in western Oregon, mostly along the coast and inland shoestring valley areas.

CONTROL programs for a pretty ornamental—turned weed—that has invaded an estimated 25,000 acres in western Oregon have been worked out after 5 years' research by the OSC Agricultural Experiment Station.

The weed is gorse, and farmers in Curry and Coos counties have been battling it for years. Some were lucky. They were able to control the thorny legume before it became established, and have been chopping out new infestations before they get a foothold.

Others not so lucky have been waging a discouraging, uphill fight with complete control a dim possibility.

And results of the station's work in the area don't offer a quick cure, according to agronomist D. D. Hill. Complete control—if possible—will come only after years of dogged, intelligent work.

### Gorse first grew in Bandon

Early records indicate gorse first grew in Bandon late in the 19th century. This letter was introduced at a public hearing on gorse control in 1944:

> To Whom It May Concern:
>
> I can recall back in May 1894 when I saw two rows of gorse approximately 12 feet long and 2 feet high at the place knowns as Lord Bennett's, an early resident of Bandon. He stated to me at the time that he had brought the seed from Ireland . . . . . Since then the gorse got out of control and spread in the area of Bandon until by 1936 it was scattered through the area around Bandon and was a great aid to the fire that destroyed Bandon. Since 1936, it has spread more rapidly than before.
>
> Michael Breuer

Gorse seeds have scattered quite a ways from Lord Bennett's place. It has been reported in every coast county and in most Willamette Valley counties in Oregon, in Washington, and in California. Heaviest infestations in Oregon are around Bandon in Coos County, on the Elk River in Curry County, and on Heceta Head in western Lane County.

### Spreads by seed

Gorse spreads mostly by seed, according to Hill, although plants may spread by rhizomes (root-like stems). Seed looks a lot like hairy vetch seed. On warm, dry days in May and June, seed pods will pop open, scattering seed several feet. Animals, cars, trucks, logging equipment, and water, however, carry gorse seeds for several miles.

Gorse grows vigorously on sand dunes, gravel bars, fence rows, logged-off and burned-over forest land, along roadways, and in pastures and other agricultural land not disturbed by tillage. Once established, its dark green foliage completely mats the area, crowding out other vegetation. Thorny, 8-foot-high limbs discourage animal feeding. Plants contain 2.5 to 4 per cent oil, with the plant growing from the center outward. This leaves a mass of dead, dry, oily material in the center. When the plant fires, the center burns to form a chimney or draft, thus increasing the fire's intensity.

When humidity drops, gorsed areas are a serious fire hazard.

**Kill when only a few plants**

Hill reports the best time to completely control gorse is when there are only a few plants. Once a seed supply has been built up in the soil, it is impractical—if not impossible—to eradicate the legume. But it can be controlled. Best thing is to prevent its spread to high-priced agricultural land.

At first, gorse spreads slowly. Seed is hard, and will lie in the soil as long as 25 years before germinating. Hard seed is resistant to fire, although a good burn will crack many seed coats, and the next year will see a lush emergence of gorse seedlings. Soil samples indicate that from 4 to 9 million seeds per acre are in the surface inch of gorse-infested soil. That's why any control program includes yearly bouts with gorse seedlings once the original stand has been killed.

**BURNING gorse is usually the first step in a control program. The plant contains from 2.5 to 4 per cent oil, with dead material in the center. The legume fires well when humidity is below 50 per cent.**

### Control of Individual Plants

***Cut*** the top and paint the stump with 2,4D-2,4,5T brush killer. A small amount of the undiluted chemical is enough. November to March is a good time for this. Axing below the crown usually won't kill the plant. Roots will send up new shoots the next spring.

### Control on Nontillable Land

***Burning*** is usually the first step, if gorse is dense. Fire when the humidity is low (below 50 per cent), to get a clean burn. A poor burn will leave the main gorse stalks standing, with little damage to the plant. Such plants will start regrowth immediately. Gorse is injured after a good burn, even though there's some regrowth at the crown.

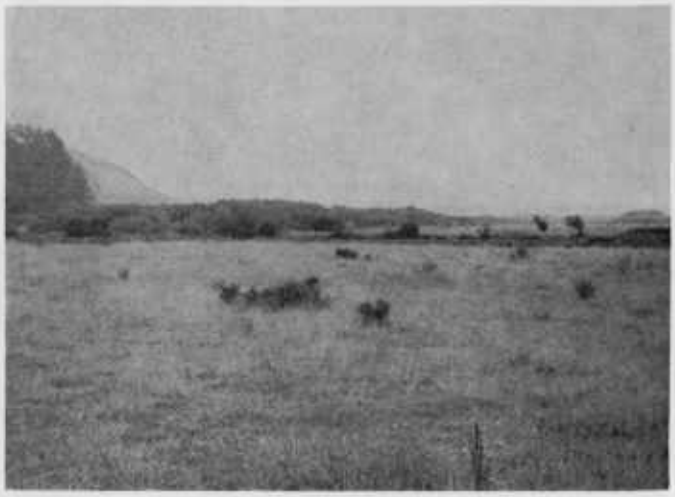
***Spraying*** this regrowth is the next best step. And the cost is only about 75 per cent of what it would be if gorse hadn't been burned. Spraying also will kill many of the emerging seedlings that germinate after fire has cracked hard seed coats. Spraying over a wide area, however, is costly. Best to clear up one chunk at a time. Summer—before September—is the recommended time to spray.

Many chemicals will control gorse, the best being brush killers, usually mixtures of 2,4,5-T and 2,4-D. From 3 to 5 pounds of parent acid (ester form) per acre will give effective control for one year. Follow-up sprayings will be needed for one or two more years, but the rate needn't be so heavy (2 pounds). After that, gorse growth will be from seedlings, plus an occasional persistent old plant. Then spot spraying of plants and small areas usually is more practical.

**Soil sterilants effective**

Soil sterilants also are effective where they can be used. A combination of sodium arsenite (2 pounds per square rod) and borax (6 pounds per square rod) have given effective control—sometimes in one application. Another application the second year usually will give excellent control. But Hill says sterilants have limited use. They sterilize the soil for a long time. Also arsenic is hazardous to handle, since it is poisonous to humans and cattle.

*(Continued next page)*



**BEST TIME to control gorse is when there are only a few plants. Once a seed supply is built up, eradication is impractical—if not impossible.**

**TILLAGE will destroy gorse seedlings on cropped land, but it's necessary to spray gorse in fence rows to prevent reseeding. Brush killer works.**

A nonpoisonous soil sterilant which gave good control was CMU, applied at 40 pounds per acre. Some regrowth was noted after two years. However, no regrowth was observed when 80 pounds were applied per acre.

Ammate at 3 pounds per square rod will bring reasonable control if applied for two years. Since ammate contains nitrogen which plants can use, good grass stands sometimes emerge after treatment. But brush killers must be used to control gorse regrowth.

### Control on Tillable Land

**Crop land**

***Bulldozing*** is the first operation, then windrow and burn. Be sure to get as many roots as possible, since new plants will emerge from imbedded roots. Tillage will destroy gorse seedlings on cropped land, but it's necessary to spray gorse in fence rows to prevent reseeding.

**Pasture**

***Crop*** for two years after bulldozing, if possible. Then prepare a seed-bed.

*On upland pasture land,* first add 300 pounds of super phosphate and 40 to 100 pounds of nitrogen per acre. Then seed with such grasses as Alta fescue, perennial rye, orchard, Tualatin, oats, Chewings or creeping red fescue, and highland bent. These develop a dense sod. Sow 4 to 6 pounds of subterranean clover and 15 to 20 pounds of some of the above grasses. Sub clover is the only legume recommended. Reason: seeds mature before spraying time, thus insure a clover crop the following year. Hill says it's important to apply nitrogen so grass can compete with gorse. Once a pasture becomes established, close grazing by sheep helps control gorse.

**GROWING right to the beach, gorse takes over completely once it gets a start. The lowering of land values in this potential resort area makes gorse control a big problem for county governments.**

After sub clover has gone to seed, spray the pasture with 2 to 3 pounds of brush killer per acre. Spot spray after 2 or 3 years.

*On irrigated bottom land,* apply the above fertilizers, but substitute Ladino clover as the legume. Lush pastures tend to discourage gorse regrowth, and Ammate or brush killers can handle any that does appear.

### Control by Goats

There are many areas where chemical gorse control is too costly for farmers. Hill says goats are the next best method.

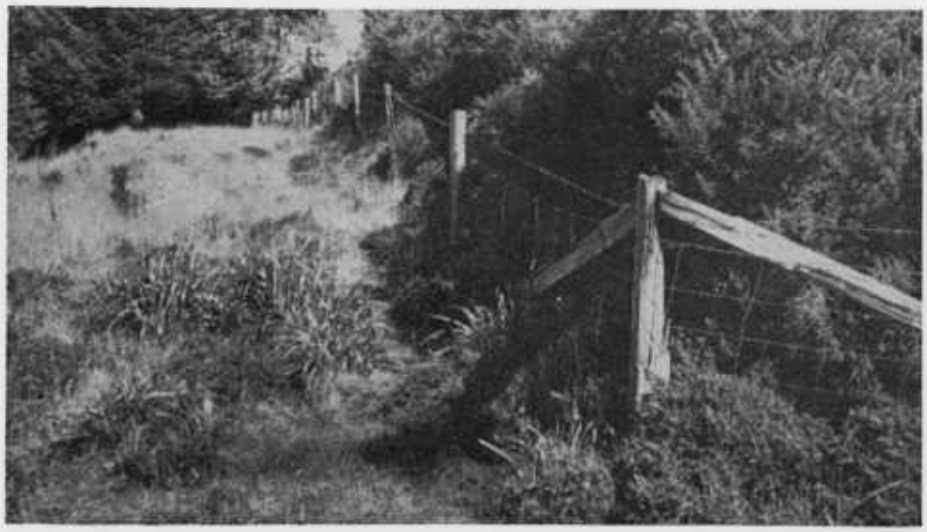
Burn gorse before turning out goats. Also, be sure the animals are within a goat-tight fence. Keep goats in an area where regrowth ranges from 2 to 4 inches. Both goats and sheep relish this gorse browse. Since goats prefer browse more than do sheep, they'll eat more gorse, even when there is plenty of grass. Maintain enough goats to keep the browse eaten down closely. As the gorse is grazed, grass usually begins to appear. Then it's time to add sheep.

### Control by Reforestation

Shade kills gorse. But Hill says it's difficult to shade gorse, since dense stands burn easily. This also kills tree seedlings. Also, this is a longtime method—possibly 25 to 35 years.

**Gorse a community problem, too**

Hill emphasizes that gorse is often more than a problem that should be faced by individual farmers. Communities in a gorse-infested area have a stake, too. The history of gorse should be a warning that all communities must combat small patches while they are controllable. The time required for seed germination and slow spread of original plantings deceives many into believing that the plant isn't a hazard. This, says Hill, is a snare and a delusion. There are few weeds along Oregon's coast that take over the land more completely or are more difficult to kill. The constant fire hazard to timber and the crowding of agricultural land and resort areas—with the inevitable lowering of land values—makes gorse a public enemy with a high priority.



**GOATS will eat gorse regrowth once an old stand has been brought under control. Goated area left, not goated, right. Best to burn old stands, then let goats eat regrowth. Animals relish gorse browse.**

# *Shearing Lambs Means - - -*
# Cheaper, Faster Gains

A 2-year study at the Union branch experiment station shows that shorn lambs on a fattening ration will gain 17 per cent faster than wooled lambs fed the same ration. Some 200 wether Columbia-Targhee lambs were used in the trial, which will be repeated again this autumn.

**WHILE SHEARING brings cheaper and faster gains, final profit will depend on wool-lamb prices.**

SHORN LAMBS fed in open lots will fatten faster with less feed than wooled lambs fed either in open lots or in shelter. Shorn lambs fed in shelter will gain faster than wooled lambs, but not as fast as shorn lambs fed in the open.

That's the result of a 2-year study completed by OSC animal husbandman Cecil Pierce. The trial was conducted at the Eastern Oregon Branch Experiment Station at Union.

Pierce used 200 wether Columbia-Targhee lambs for the trial each year. Half were shorn. Then 50 shorn and 50 wooled lambs were fed in open lots, and the same number fed in sheds open only on one side.

**Lambs fed 57 days**

Lambs were fed 57 days, beginning October 1. The ration was alfalfa hay, silage, and whole wheat-cull pea concentrate. Hay was second cutting, fed long, and silage was made from a pea and beardless barley mixture. Wheat was fed whole, and peas ground as coarse as possible, then mixed with wheat. All grain was hand fed, beginning at one-fourth pound per head a day, then increased gradually according to a lamb's ability to feed. Lambs themselves determined their highest feed intake.

Weather in both test years was about the same. For example, October 1952 temperatures varied from 25 to 86 degrees, averaging 53 degrees. October 1953 temperatures ranged from 24 to 83 degrees, averaging 50 degrees.

The researcher reports shorn lambs in shelter and in open lots gained more than 17 per cent a day over wooled lambs. The figures: shorn lambs, fed outside, .375 pounds per day; sheltered, .349 pounds; wooled lambs, fed outside, .320 pounds; sheltered, .286 pounds.

**Shorn lambs required less feed**

Also, shorn lambs required less feed to put on a pound of mutton. The figures: shorn lambs, fed outside, 5.97 pounds total digestible nutrients (TDN) per pound of gain; sheltered, 6.25 pounds TDN per pound of gain. Wooled lambs, fed outside, 6.39 pounds TDN per pound; sheltered, 7.44 pounds TDN per pound.

Pierce says shorn lambs cost less to feed, but shearing costs and other items carved into profits, making wooled lambs more profitable in one case. It cost about 5 cents less to feed each shorn lamb. The 1953 figures: shorn lambs, fed outside, $0.17 per pound; sheltered, $0.19; wooled lambs, fed outside, $0.22 per pound; sheltered, $0.24.

**Profit favors wooled lambs**

But profit per lamb from each group didn't follow suit. The 1953 figures: shorn lambs, fed outside, $1.40; sheltered, $1.42; wooled lambs, fed outside, $1.65; sheltered, $1.38. The researcher explains that shorn lambs sold less than wooled lambs. This, plus shearing costs, partly offset any gain from shearing.

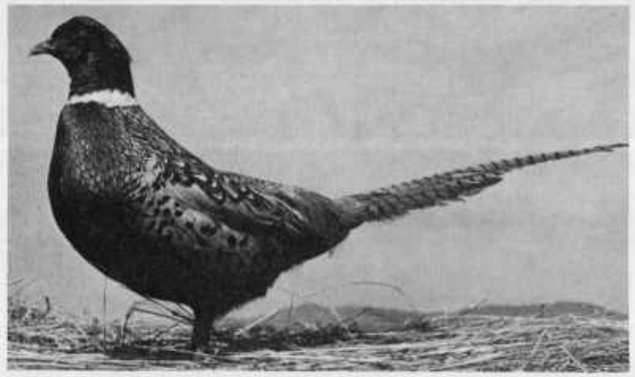
While shearing brings cheaper and faster gains, final profit will depend on wool-lamb prices. In years when wool is priced high, it probably will pay to shear and take advantage of fast gains. When wool prices are low, it would likely pay to feed lambs unshorn.

## For the sportsman . . .

ARTIFICIALLY-REARED game-farm chick has as good a start as wild-hatched chick.

AT 8 WEEKS, artificially-reared pheasant chicks can survive as well as chicks raised in the wild. Released then, they will be good fall hunting.

## research shows . . .



READY for any hunter, a farm-reared pheasant is as elusive as a wild-raised bird.

# Farm Raised Pheasants Are Good Hunting!

One of Oregon's favorite farm-reared game birds can take better care of itself than you might think.

In fact, many of the limits placed on ring-neck pheasants raised on game farms are only artificial barriers formed by man's lack of knowledge, according to Arthur S. Einarsen, leader of the cooperative wildlife unit at OSC.

**Cites 15-year study**

To back this up, he cites results from a 15-year study of pheasants conducted on Eliza Island, a 158-acre tract in the San Juan group off the coast of Washington. The island was a game researcher's paradise. It contained the "shoestring" valleys, fields, and forests typical in British Columbia, Washington, Oregon, and California. Yet it was isolated so scientists could accurately control and observe experimental birds. Nearest land was a mile away, too far for pheasant flight, although a few tried. (They didn't make it.)

Out of the study Einarsen explodes five fables about farm-reared pheasants, and adds some interesting findings on pheasants in general.

**Fable:** *Game-farm reared birds inbreed, thus lack breeding vigor.*

**Fact:** Two cocks and 6 hens increased to 1,898 pheasants in 6 mating seasons. In the sixth mating season, egg fertility was 92.5 per cent. Both figures are just as high or higher than wild nesting. Also, chicks hatched in late May or early June from game farm stock about equaled the weight of their parents by November 1 of the same year.

**Fable:** *Game-farm birds transmit more diseases than wild birds*

**Fact:** Autopsies of experimental birds and their young showed no disease, even when there were more than 4 pheasants per acre. The possibility of disease spread drops each year as modern artificial rearing methods are developed. However, when poultry brood hens are used instead of pheasant hens, chances for infections are greatest.

**Fable:** *Artificially reared game-farm birds can't adjust to the wild nor survive as well as hen-reared birds.*

**Fact:** Little difference in survival rates showed up between groups of chicks over 8 weeks of age. However, chicks released in the 6 to 8 weeks age class had a higher survival rate when brooded by a hen. Chicks were more self reliant, looked better, and adjusted better to their surroundings. But exposed to cold, wet, or stormy weather, chicks of both groups had a tough time surviving. Rain will soak through undeveloped feather coverings, and birds are weakened by exposure. If rain or cold continue overnight with temperatures 55 degrees or below, few 6- to 8-week-old chicks survive.

**Fable:** *Farm-reared birds don't adjust to the wild.*

**Fact:** Four-months-old cocks hatched in June averaged 2 lbs. 4 oz. when they were harvested in November. Their fathers averaged 2 lbs. 14 oz. Hens showed about the same weight between groups, but averaged less than cocks. This means farm-hatched pheasants have the ability to "shift for themselves" and gain fast when released. Also, Eliza Island is made up of several "shoestring" valleys, considered not the best place to raise pheasants.

**Fable:** *Game-farm pheasants are slow, dull, and unsuitable as game birds.*

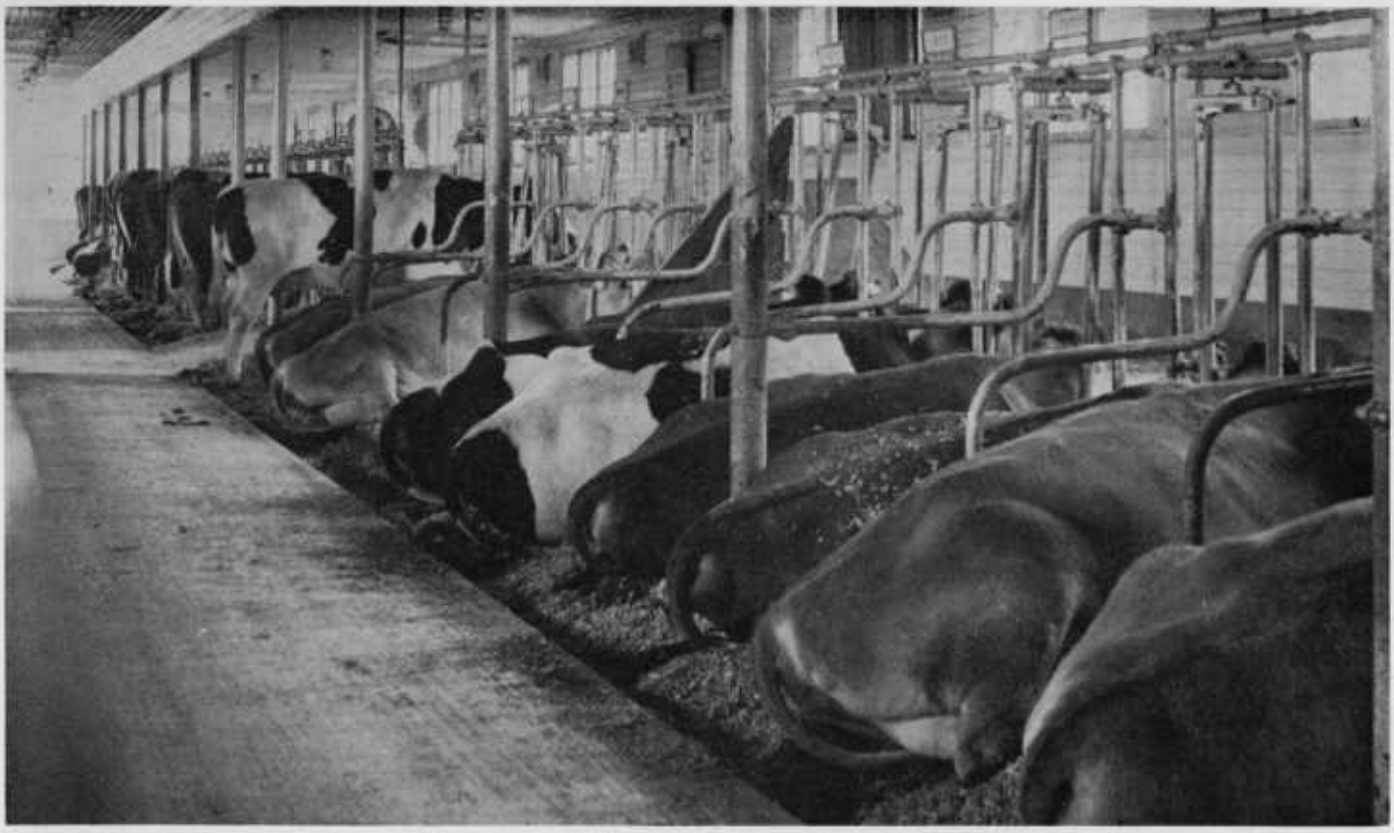
**Fact:** Researchers trapped and hunted all birds between November 1 and January 1 of each year. The secretive, elusive, alert traits sportsmen want in a game bird were the same whether pheasants had been born on the island, or were farm-reared and released as 8-week-old chicks. However, Einarsen says this comparison doesn't hold true for immature birds immediately after their release. It takes them about 2 weeks to adjust to their new surroundings.

***The study brought out other findings important in game management, according to Einarsen.***

► It's easy and usually disastrous to have too many pheasants in one area. On the Island, pheasants at one time numbered more than 50 per 100 acres. This resulted in two serious losses. Hens built "community nests" (up to 48 eggs) and developed little interest in incubating. Also, hens with chicks of their own killed unguarded chicks. Once, 22 chicks ranging from 1 to 50 days old were thus killed. Unless cover is excellent, overstocking may be a serious problem.

► Game-farm reared birds alone cannot supply hunters' needs. Wild stock must be relied on. Releases should be placed in areas low in pheasant numbers. Best time to release farm-reared birds is about March 1, provided the weather is not too cold. Over-wintering losses were about 50 per cent for hens released in the fall on the island.

► Pheasants can and do live in pastures, prairies, and cutover land. Grain fields are not essential. Thus, stocking birds on once-thought "poor pheasant" land can insure at least 20 birds per 100 acres—enough for hunting. This means many places above the Mason-Dixon line could become popular pheasant hunting areas.



**COWS producing Grade A milk usually are housed in cement-floored, metal-stanchioned barns. Can high quality milk be produced without these facilities?**

# Milk Quality vs Dairy Costs

A cost study of Grade A and factory dairy operations in Tillamook County and in the Willamette Valley reveal some significant conclusions on cost and milk quality.

WHICH COSTS more to produce—high or low quality milk?

Barring feed costs, OSC agricultural economist D. Curtis Mumford figures there is little difference. What's important, he says, is the dairyman himself.

Actual cost figures were $2.44 per hundredweight for Grade A operations, compared with $2.53 per hundredweight for factory milk. This difference isn't enough to be important, since the spread might occur normally within each group.

The economist obtained detailed 1952 cost figures from 23 Grade A dairymen in the Willamette Valley and Tillamook county, and 31 factory farms in Tillamook county. All dairies were stanchion-equipped.

Cost items included everything except feed—costs such as labor, buildings, equipment, hauling, credit, breeding, and depreciation and interest on cows and other equipment. If feed costs had been included, Mumford says it's possible the total cost of producing Grade A milk—even figured by hundredweight—might have been higher than on factory farms, since additional feed is needed to maintain high production in winter months.

Costs also were computed on a per cow and a per pound butterfat basis. They were: per cow, Grade A, $216, factory, $184; per pound butterfat, Grade A, 57.3 cents, factory, 60.2 cents. Price-wise Grade A producers received $6.45 per hundredweight, while factory milk brought in $4.86.

The economist cites several interesting differences that affected slight cost spreads.

Grade A dairymen spent more time (103 hours per cow a year) than factory milk dairymen (90 hours) in cleaning barns and milkhouses, and other tasks that should be charged to

the milking herd. Other costs, such as milking and feeding, were about the same.

### Grade A dairymen hired more help

Factory farm operators completed three-fourths the work, their families did another 10 per cent, and they hired only 13 per cent. On Grade A farms, the operator completed slightly more than half the work, the family 11 per cent, and the rest (33 per cent) hired. Grade A farmers were in other farm enterprises, thus could not spend as much time with their herds as factory milk dairymen. About 79 per cent of the total income on Grade A farms came from dairying, while dairy receipts made up 92 per cent of the income for factory farms.

Seasonal milk flow on Grade A farms was more uniform. In the pasture season (April through September) both Grade A and factory milk dairymen put in about 14.5 minutes on each cow a day. But beginning in October, milk flow on factory farms fell drastically, since there was no incentive to push for quota production throughout the winter.

Buildings were valued about double by the Grade A operator, compared to those valued by factory milk operators. Values (figured about 50 per cent worn out) averaged $8,197 for Grade A farms, $4,222 for factory farms. However, Mumford says the differences in values didn't affect milk production costs too much because higher valued buildings last longer, and milk production per cow was much higher. Dairy equipment on factory milk farms was about two-thirds the value of equipment on Grade A farms. The figures: $1,075 for Grade A, $711 for factory. Again, the economist assumed the equipment was about half worn out. No bulk tank costs were included.

### Equipment not always needed

Many folks believe a dairyman must have expensive barns and equipment to produce Grade A milk. Not always true, says Mumford. On the farms surveyed, Grade A quality milk was being produced by many dairymen selling their milk at a factory grade.

Tests at OSC showed that although factory milk dairymen in general were producing lower quality milk, 14 (45 per cent) were producing milk with Grade A quality. But the economist points out that factory milk in Tillamook County probably is higher in quality than that in other areas, because of an emphasis on milk quality there in recent years.

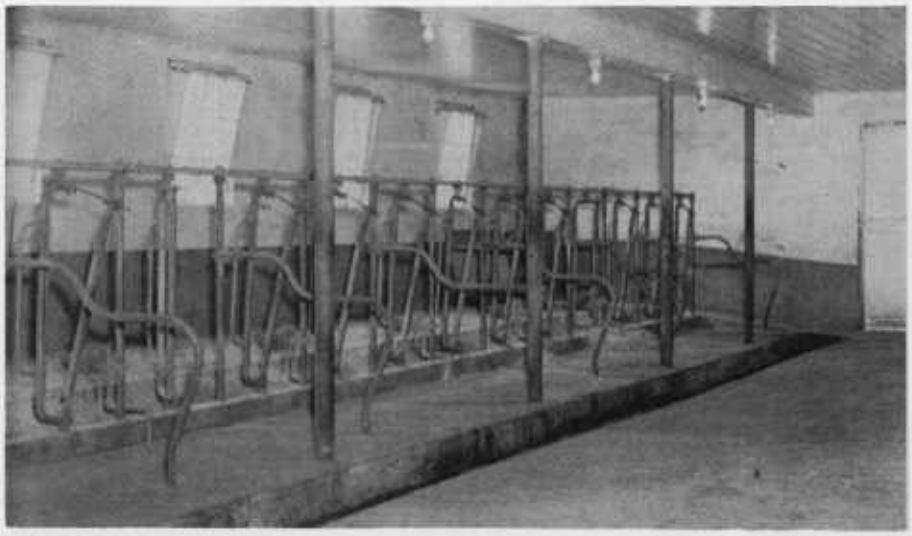
Total production had much to do with lowering costs for Grade A dairymen, says Mumford. Figured on a 4 per cent fat corrected basis, each Grade A cow averaged 8,857 pounds of milk a year, compared to 7,262 for each factory milk cow. Herd numbers averaged 35 cows for Grade A operations, 33 for factory farms.

Summing up the results of his study, Mumford says Grade A dairymen were able to offset higher costs per cow by being better dairymen. Although feed costs were not included, a dairyman's ability to get more milk per cow was a big reason.

Also, the fact that many factory milk dairymen could and do produce milk low enough in bacteria for Grade A quality without some of the costly equipment leads Mumford to conclude that a closer evaluation of present requirements for Grade A dairies might be in order.

### Production Costs for Grade A, Factory Dairies

| *Item* | *Grade A* | *Factory* |
|---|---|---|
| Labor | | |
| *Operator's direct* | $1.06 | $1.56 |
| *Operator's overhead* | .15 | .12 |
| *Family* | .18 | .17 |
| *Hired* | .44 | .14 |
| Total labor | $1.83 | $1.99 |
| Use of buildings | .30 | .24 |
| Use of equipment | .08 | .07 |
| Breeding | .08 | .08 |
| Depreciation on cows | .14 | .25 |
| Interest on cows *(@ 5 per cent)* | .18 | .19 |
| Veterinary & medicine | .08 | .07 |
| Hauling milk | .28 | .14 |
| Miscellaneous | .36 | .32 |
| Total costs *(except feed)* | $3.33 | $3.35 |
| Credits | | |
| *Calves* | .24 | .17 |
| *Manure* | .35 | .42 |
| *Other* | .04 | .03 |
| Total credits | $ .63 | $ .62 |
| Total net cost | $2.70 | $2.73 |
| *Total net cost adjusted to 4 per cent fat corrected milk* | $2.44 | $2.53 |



**EXPENSIVE BARNS and equipment aren't always necessary for Grade A-quality milk production. Researchers found high quality milk produced in buildings less attractive than in this Grade A set-up.**

BLACKLINE (top picture) as it looks on this 25-year-old walnut tree. Below are 5 English rootstocks under test. From left, Mayette, Franquette, Kirk Seedling, Countryman's Carpathian, and Manregian.

# *Walnuts:* New

A SLOW DEATH is settling over many Oregon walnut orchards, and new plantings on a different rootstock scem about the only method of combatting it.

The cause of this tree death—and income loss for walnut growers—is blackline, an unexplainable separation of the graft union after trees are about 20 to 30 years old. This graft split interferes with the normal upward and downward movement of plant food.

### Trees are English graft

Trees dying from blackline are primarily English varieties grafted on a black walnut rootstock. Back before World War I, Oregon nurserymen and growers had found that this combination resulted in earlier and heavy, consistent, quality nut production. Before that, growers had planted English seedlings, which gave wide differences in nut shape, growth, and yield. When commercial grafting became accepted, most growers switched to the Franquette-black walnut combination.

# *Holly:* Fungus Causing Leaf-Drop Is Spreading

DENUDED holly tree shows result of leaf drop fungus. Orchards hardest hit in coastal areas.

THE CAUSE of an important new leaf and twig disease of English holly has been found by OSC plant pathologists Ivan Buddenhagen and Roy Young.

The disease is caused by a fungus from the Phytophthora group, and is the major disease now attacking Oregon commercial holly orchards. Coastal orchards have been hardest hit, with up to 80 per cent of some trees denuded, and many of the lower limbs and twigs killed. Thc disease also has been found in interior areas of both Oregon and Washington.

### Disease symptoms and life cycle

The disease results in black leaf spotting, beginning in the lower part of the trees in late fall, with the spotting sprcading upward in the winter. Then twig dieback and canker development start on larger stems later in the winter. In the spring, infection may show up at the berry clusters, some distance from the twig tip, and girdle and kill the twig. Then the leaves turn brown, but remain on the twig, producing a flagging effect. Young holly plants also are affected, and the fungus-caused leaf drop may kill them.

### Disease spread

Young says cool, rainy weather encourages disease spread, but the fungus becomes inactive in warm, dry summers. It grows only at low temperatures, and will not grow at all when temperatures are above 77 degrees. It's most active between 60 to 70 degrees.

The disease is spread chiefly by spores carried by splashing rain drops. Fungus spores form in the fall on lower leaf surfaces, and may enter the leaf through leaf-spine punctures or other leaf wounds. Also, fungus may enter through leaf scars, then travel from the twig into large stems, causing stem cankers. Losses are highest in thick foliage, where wind movement

# Rootstocks Best Answer to Blackline Problem

Then in 1932, Charles Trunk, a Dundee nut grower, reported a separation of the graft union in some of his 22-year-old trees.

Since then, a high percentage of trees in many orchards have died. During the past four years, OSC extension horticulturist C. O. Rawlings and U.S. Department of Agriculture workers J. H. Painter and P. W. Miller reported in their survey of 10,000 walnut trees that four-fifths of those dying were dying from blackline, Also, a crown rot just below the graft often accompanies blackline.

How can blackline be prevented?

Horticulturist Quentin Zielinski says to replant, using a different rootstock.

### Manregian outstanding rootstock

Two years of testing various English rootstocks shows that Manregian, a variety imported from Manchuria about 1900, is outstanding in seed germination, tree height, and trunk diameter. Tops grafted on Manregian should bear commercially in 5 to 7 years. Other rootstock varieties tested were Countryman's Carpathian, Kirk seedling, Mayette, and Franquette.

The study showed that Mayette had the lowest seed germination, while Kirk produced the smallest seedling tree. Franquette seedlings grew better on an average, and were taller than the Mayette by almost an inch. But Franquette produced trees of various sizes in the nursery rows. The Carpathian ranked fairly high in germination but produced a smaller tree.

Zielinski says Manregian was the outstanding rootstock in the nursery test and if it continues to perform well, it will be a good rootstock for Oregon growers. But the horticulturist points out that his nursery tests don't guarantee commercial performance of any rootstocks until the combinations have reached maturity. Also, other untested English rootstocks may later prove to equal or better Manregian.

Right now, Franquette tops grafted to Manregian rootstocks should give growers a combination of the hardy, high producing trees they want. Whether blackline will show up later is still a guess, but with an English rootstock, Zielinski figures there's less danger.

**Manregian Outstanding Walnut Rootstock in Nursery Tests**

| | *Seed Germination (Per cent)* | *Average total height (Feet)* | *Average trunk diameter (Inches)* |
|---|---|---|---|
| Manregian | 79 | 9.95 | .50 |
| Countryman's Carpathian | 68 | 6.72 | .35 |
| Kirk Seedling | 62 | 6.32 | .28 |
| Mayette | 38 | 6.79 | .31 |
| Franquette | 48 | 7.63 | .32 |

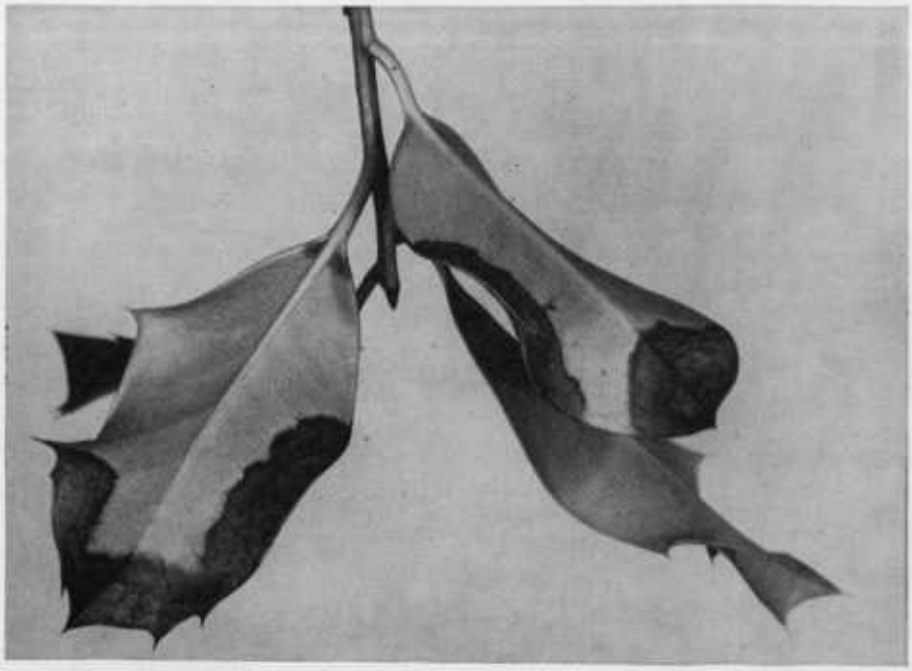
# Among Northwest Commercial Plantings

is slowed and humidity remains high.

### Disease control

The pathologists haven't a sure-fire control yet, but they are testing several promising fungicides this fall. They list four precautions growers can take to help halt and possibly control the disease:

1. Plant new trees on moderately open sites, where wind will circulate.
2. Space and prune trees to permit good air movement. Thick foliage usually results in a disease spread.
3. Apply a fungicide as a safety precaution when cool, rainy weather starts this fall. It's a good idea to apply by November 1. Be sure the fungicide will not leave a visible residue on holly that will be sold.
4. Do not ship diseased leaves. Young says just a few diseased leaves will produce enough ethylene gas to defoliate the entire contents of a 10-pound pack during shipment.



**TYPICAL SYMPTOM of holly leaf-drop disease includes black leaf spotting, which begins at lower part of tree, moving upward during winter. Final result is drop of infected leaves in mid-winter.**

# Research Briefs

**Dehydrated Snap Bean Developed • OSC Broiler Ration Retested • Purified Abruzzi Rye Seed Released**

## Purified Abruzzi Rye Seed Available for 1955 Foundation Plantings

FOUNDATION SEED will be available next year for Abruzzi rye, popular in the Willamette Valley as a pasture, cover, and green manure crop.

Abruzzi was first released in Oregon about 10 years ago. But seed growers failed to maintain the rye as a seed crop. Plantings often went to pasture and hay, and varietal purity was lost. Abruzzi also cross-pollinated with other ryes, thus adding to the impurity.

For the past 4 years, OSC agronomist Wilson Foote has been purifying and increasing Abruzzi. Limited amounts of foundation seed were allotted to seed growers this year, and more will be available in 1955. Seed will be sold only to growers planning to raise it for seed. If interested, see your county agent. Demand for certified Abruzzi should be strong.

### Not a grain rye

Abruzzi is not a grain rye, but has a place in the Willamette Valley as a pasture grass, as a green manure crop, and as a cover crop. Farmers favor it over other ryes such as Balbo, Prolific Spring, Dakold, and Bohemia because Abruzzi is a lush spring and fall grass producer. Other varieties don't measure up to Abruzzi's ability to make excellent forage in either season.

Abruzzi has enough winter hardiness for the Willamette Valley, and as an early spring variety, it escapes many of the diseases that cut yields of other rye varieties. Like other ryes, it produces better than other grains on sandy, acid, or infertile soils. However, it volunteers freely, and mixtures with wheat may bring wheat market discrimination.

Early fall is the best time to plant Abruzzi, the earlier the better if you want fall pasture.

## Added Vitamins Don't Always Mean Added Broiler Efficiency

Can high efficiency broiler rations be improved?

Broiler producers are bombarded with claims that new supplements added to rations will increase broiler feed efficiency.

But do they always?

The experiment station has used and recommended a fairly simple high-energy broiler ration for the past 2 years, and growth and feed efficiency have been excellent (average: 2.8 pounds of feed per pound of weight for mixed sexes). Attempts to improve the ration with additional niacin, choline, and vitamin A have brought no success, according to poultry nutritionist G. H. Arscott.

### Three feeding treatments used

Arscott fed three rations to groups of 250 New Hampshire chicks each for 10 weeks. Two-hundred twenty-five were females, 25 were males. One treatment was the standard, recommended OSC ration. Ten milligrams (mg) of niacin per pound of feed and 150 mg of choline per pound were added to the standard ration as the second treatment. The third treatment was the same as treatment 2, except that 0.2 per cent of vitamin A (2250 International Units per gram) was added.

Weights after the 10-week feeding trial showed no important differences in weight gain or feed efficiency. Treatment 1 (standard ration): chicks averaged 3.15 pounds, with 3.04 pounds of feed required for each pound of body weight. Treatment 2: chicks averaged 3.13 pounds, with 3.13 pounds of feed per pound of weight. Treatment 3: chicks averaged 3.11 pounds, with 3.06 pounds of feed required per pound of weight. Feed conversions were higher than normal because the researcher was feeding a high percentage of pullets.

Summing up his results, Arscott says the following ration is still a good bet for broiler producers:

| | |
|---|---|
| Ground yellow corn | 1,300 *lb.* |
| Soybean meal, sol. 44% | 530 *lb.* |
| Herring fish meal, 70% | 70 *lb.* |
| Dehydrated alfalfa leaf meal, 17% | 20 *lb.* |
| Steamed bonemeal | 45 *lb.* |
| Oyster shell flour | 25 *lb.* |
| Salt (iodized) | 7 *lb.* |
| A & D oil (2,250A—300D) | ½ *lb.* |
| Vitamin $D_3$ supplement, dry (1,500-D) | ½ *lb.* |
| Manganese sulfate, 65% | 10 *oz.* |
| Riboflavin | 10 *g* |
| Calcium pantothenate | 5 *g* |
| Commercial antibiotic — $B^{12}$ supplement *(supplement contains 2 grams procaine penicillin and 3 milligrams of vitamin $B^{12}$ per pound)* | 2 *lb.* |
| Sulfaquinoxaline | 5 *oz.* |
| | 2,001 *lb.* |

**BROILERS fed the standard, recommended OSC ration that contained no increase in nutrients gained just as fast as birds fed rations in which vitamin A, niacin, and choline were added.**

## Think Small Cell Particles Cause Fly DDT Resistance

Farmers have known for several years that flies build up resistance to DDT and other pest-killing compounds.

Scientists have come up with several theories on how this happens, and OSC animal husbandmen E. F. Johnston and Ralph Bogart, and USDA entomologist A. W. Lindquist have added another, based on genetic tests.

Results indicate that resistance is triggered by particles in the cell cytoplasm. Cytoplasm is the water-like material that makes up most of a cell. Other parts include the nucleus, cell membrane, and minor materials. These particles haven't been seen in fly tissue, but have been noted in amoebae and other single-cell animals. How these particles cause resistance is not completely known.

### Some DDT necessary

The researchers say some DDT in the fly's environment is necessary before these particles are reproduced in offspring, since resistance declines when there is no DDT around. There's evidence that by one or more pairs of genes, flies pass on this ability to develop resistance. Genes are inheritance units that control the way a character develops.

Temperatures at which fly larvae develop and the time it takes flies to change from egg to adult also affect DDT resistance. Johnston, Bogart, and Lindquist found that high temperatures meant shorter development time, and lower resistance. They raised more than 11,300 flies in 9 generations for their tests.

### Resistance may be similar

Resistance to the killing action of DDT may be similar to resistance of insects and animals to other poisons. The researchers think an understanding of the resistance nature might lead to developing better resistance in desirable creatures, as well as destroying resistance in undesirable species.

Further research might shed light on why some animals in the same environment are resistant to a disease, while others are susceptible. Such research might be valuable in studying diseases such as cancer and polio.

## Cabinet Size Affects Frozen Food Sales

Americans are eating more than three times as much frozen vegetables, fruits, and juices as they did a decade ago. In Oregon, however, frozen foods are not a large sales source. These foods accounted for less than 2 per cent of all retail sales in 20 large stores in Eugene and Salem.

That's one finding by agricultural economist G. B. Davis. He figured the total sales from these stores for the month of February 1953, estimating the gross profits from frozen foods and comparing these profits with other competing merchandise—such as canned vegetables and juices. Gross profits include the markup above wholesale costs, but do not include labor and other overhead costs.

Davis found that percentage of floor space devoted to frozen foods displays followed sales closely. Large stores—those totaling more than $100,000 in business in February—received 1.9 per cent of their sales from frozen foods. About 2 per cent of their floor space displayed frozen foods.

Medium-sized stores—those selling $50,000 to $100,000 in business—had 1.8 per cent of their floor space displaying frozen foods. Income from frozen foods was 1.7 per cent.

Smaller stores—$30,000 to $50,000 monthly—devoted 1.7 per cent of their floor space to frozen foods, which brought in 1.2 per cent of total sales.

### Frozen foods create expenses

Stores selling frozen foods also have expenses not found with other food items. Large stores, for example, have built walk-in freezers in back rooms. And all stores display frozen foods in cabinets. These cabinets are expensive and become obsolete soon. Also, they have electrical power costs and other repair and maintenance costs. Cabinet costs averaged slightly more than $1 per square foot of cabinet space per month.

Retailers reported margins over gross profits averaged 22 to 25 per cent of selling price. But after paying cabinet costs, their remaining margin was only slightly higher than their estimated return for canned vegetables, fruits, and juices. This varied from 14 to 17 per cent.

The economist found that frozen vegetables led frozen food sales for the month. Juices, fish, and meat—including poultry—were next. Frozen fruit had the lowest sales volume.

Fish and meat took up the most cabinet space, but was the least profitable, when you figure the amount of space it occupied. In the larger stores, for example, gross profits averaged $4.80 per square foot of cabinet space for frozen fish and meat. Juices averaged $11.40; vegetables, $11.30; fruit, $8.50; and specialty items, such as tamales, pies, etc., $7.40.

### Becoming consumer favorites

Both new and old frozen products are becoming consumer favorites. This trend is raising problems important to the retailer. He must be well stocked to meet increasing consumer demand, yet must display his foods effectively. This has meant more display cabinet space, and in newly constructed or remodeled stores, walk-in freezer storage. Such additions are costly and replace space which could sell other foods.

## Dehydrated Snap Bean Developed for Army

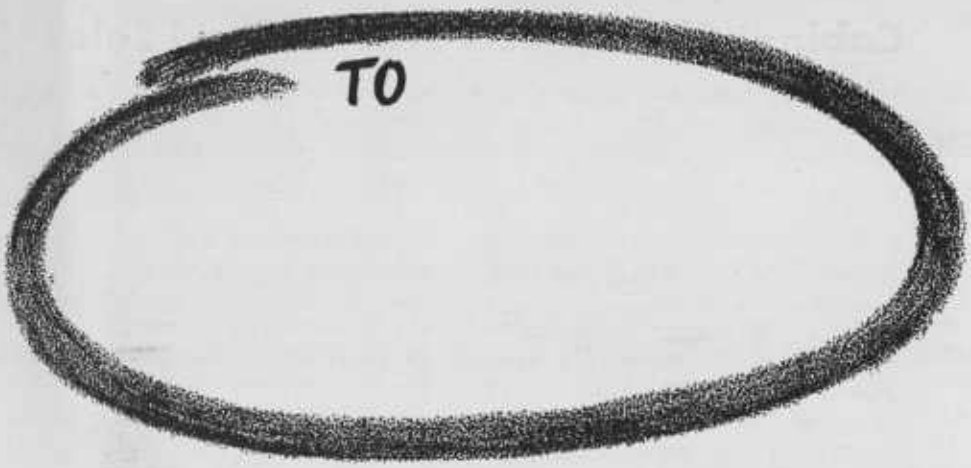
OSC food technologists have developed a dried snap bean that is nine-tenths lighter and three-fourths smaller than canned or frozen beans.

L. A. Pettit says dried beans are restored to their natural shape and about nine-tenths of their fresh weight when cooked.

Blue lake pole beans and several varieties of bush beans were dehydrated for the Army, and the product promises to be a new item in the GI's food ration.

Beans were dried by a combination of freezing and circulated heated air. Moisture in the beans was reduced from 89 to less than 3 per cent. Then steam blanching, sulfiting, and freezing followed to preserve color, flavor, form, and texture.

Dehydrated beans store well, and are easily restored to natural size by boiling. Taste testers have judged cooked dried beans higher or just as acceptable as canned or frozen green beans.

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## Farm Outlook . . .

*(Continued from page 3)*

you will feel any decline in the amount of money that reaches the housewife.

***Cattle*** feeders' margins may be narrower than many expected this winter unless cattle are bought right. Anything above 20 cents looks too high on paper. Lower quality may make the most again this year. Spreads between Common and Choice feeders were wide in the early fall. Grains may cost more than expected earlier. Bad summer weather has bolstered feed markets and fat cattle prices next year may be lower than this year.

***Wool*** benefits directly from new sections of the Farm Act. Starting next April, wool supports may be raised to 110 per cent of parity. This may bring an increase of as much as 10 or 12 cents a pound in wool supports next year. Supports may be continued at the higher level for four years unless domestic production reaches 300 million pounds by that time. It's not likely to because that is a 30 per cent increase over recent production.

***Sheep*** numbers are low. Even so, lamb prices, without promotion, may not improve much so long as beef supplies are large. Promotion might help lamb.

***Hog*** prices are almost certain to be moving into less favorable positions most of the time for the next two or three years. The build-up in the Midwest's corn-hog country will affect ham and bacon markets from coast to coast much as their build-up in chickens and turkeys is now affecting turkey and egg markets.

### Hay

Oregon and the Northwest have less hay than last fall. Poor weather cut yields. With more livestock to feed, hay prices seem likely to be a little higher this winter than last. Of course, good fall pastures and an open winter could change the picture again.

### Seeds

Don't overlook possibilities of growing red, alsike, or ladino clover seeds again, if these crops do well on your farm. Ditto for tall fescue. Surpluses should be out of the way by the time plantings made this fall and next spring come into production.

A few good rains in the South and East would do much to help clear warehouses of large supplies of hairy vetch, common ryegrass, and several other seeds. Drought discouraged planting last year and looks bad again this year. Needs will be large when moisture comes.

There is real danger that too much perennial (English) ryegrass will be planted in response to this year's high prices. Fine fescues, bents and other turf seeds are in trouble until something cuts Canada's creeping red fescue crops. September reports indicated more acres in Canada this year, but production about like 1953.

Austrian peas are now mostly used for feed. Few go for seed. They work well mixed whole or ground with grain for lambs and other livestock.

Common vetch seed market is narrow, although export outlets have been found at recent price levels.

### Dairy

We may be starting to work our way out of the dairy surplus problem. Milk, cheese, and butter consumption is running a little ahead of a year ago. Cow numbers are larger this year, but milk flow was reduced by unfavorable weather and poor pastures during the summer and early fall. Even so, government stocks are expected to show a net gain during the year. Emphasis on milk production rather than on fat still seems to be in order. Prices are likely to continue under last winter's levels.

### Poultry

If you have good luck raising turkeys and chickens, try to get in shape to raise some in 1955. Some will be discouraged, and others have gone broke by this year's experience. Next spring should be the time to move in if you think you can stand the squeeze that comes every two or three years in the poultry business.

### Potatoes & onions

Potatoes and onions put into storage this fall should bring prices well above those realized in the past year. The nation's crop of late potatoes is expected to be around 5 per cent less than last year's. The late onion crop is about 12 per cent smaller.