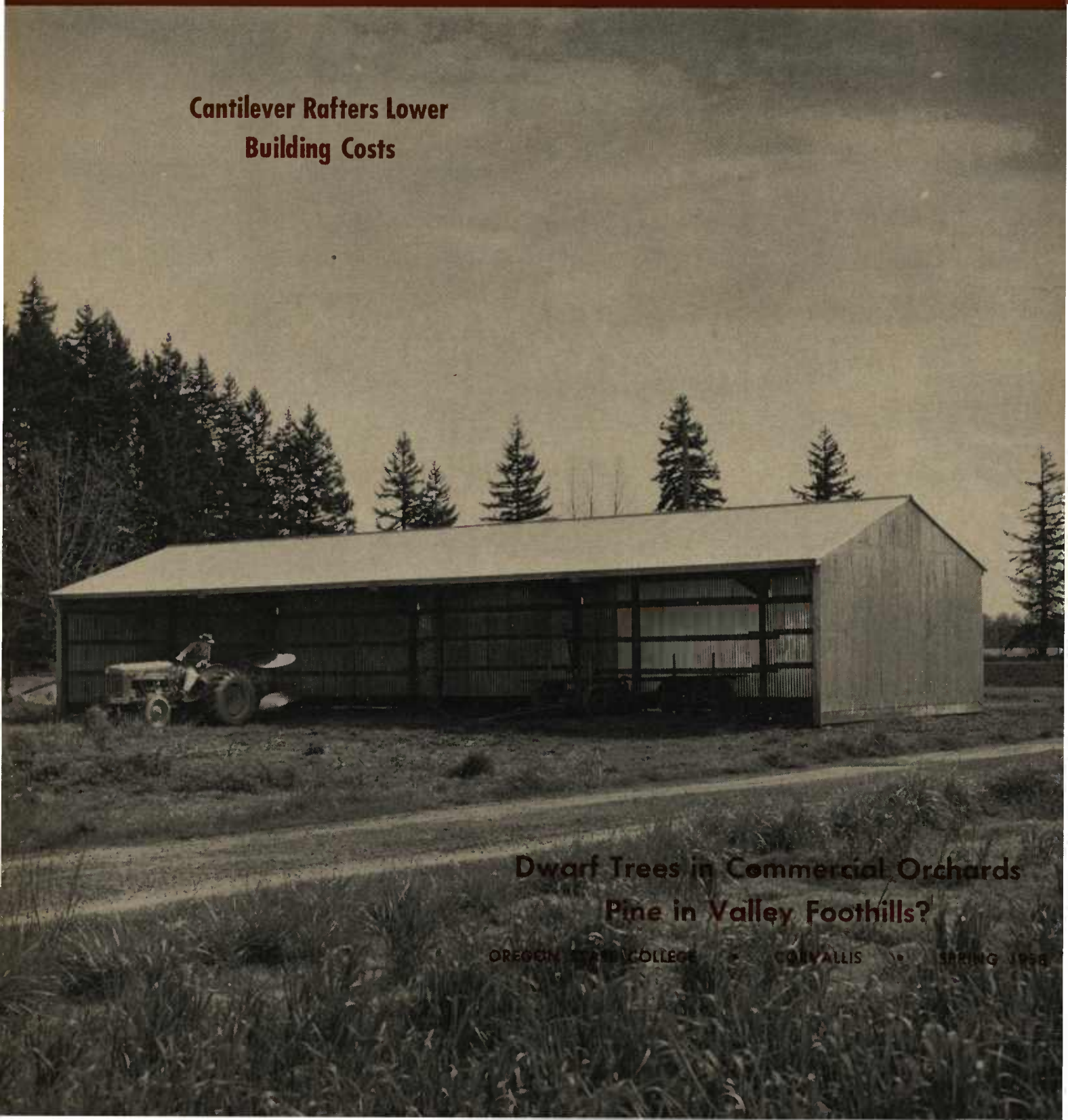
Oregon's Agricultural PROGRESS



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COVER STORY: A new concept in farm building design stresses use of cantilever rafters instead of trusses. Results of research at OSC are described on page 8.

(Photo: Bill Reasons)

THE WIDELY-HEADLINED business recession apparently has hurt Oregon farmers very little so far. It's true that wool prices are way under last spring and grains, hay, and milk are down a little; but prices of most other farm products have been up some to sharply higher.

On the whole, chances still look fairly good for a modest gain in Oregon farm income this year. The income-cost squeeze will continue to pinch in many places, but crops are generally off to a good start and livestock are in good condition.

On the demand side, the sag in business activity seems to be slowing down. If it "bottoms-out" during the next month or two, agriculture can come through the current adjustment with few new scars.

Long-term look

This does not mean any noticeable change in the long-term forces that have been pushing and pulling people out of farming into other ways of making a living and enjoying life.

During the past twenty years, the number of farm operators and hired hands in this country has decreased from around ten million to around six million. At the same time, the number of jobs off-farm has increased from around 36 million to over 57 million. This is an increase of more than 20 million jobs off-farm in 20 years, even after allowing for more than 5 million who are now considered unemployed. Today there are still more than 10 jobs off-farm for every one on-farm.

Manpower needs

Students of the nation's manpower needs figure that requirements on-the-farm will continue shrinking for at least the next decade or two. They assume that, through new technology and more mechanization, the output per farmer will continue to increase faster than population.

Meanwhile, they estimate manpower needs and job opportunities off-farm will expand sharply. These job opportunities will be generated by our growing population and increasing demands for the comforts and conveniences brought within our reach by modern technology. Many of these jobs will be closely related to farming. They will include the job of supplying needed

Farm Outlook

By Agricultural Economist M. D. Thomas

materials, machines, and information, and many jobs involved in marketing farm products.

Oregon people have had a hand in these long-term trends in the past; they are likely to continue doing so in the future.

Returning to 1958, let's look at prospects for some of Oregon's principal farm products.

Wheat

All signs point toward another large wheat crop this year in Oregon and the Northwest. Nationally this year's crop has good chances of being the largest since allotments went into effect in 1954. Yet, it is not likely to come up to the near record crop of 1952.

Plantings are generally some larger than last year's long-time low, but most of the anticipated increase comes from favorable yield prospects.

Now that the first farm bill of 1958 has been vetoed, odds are that supports on the new wheat crop will drop to 75% of parity. But this probably will be 3 or 4 cents above the national average minimum of $1.78 a bushel announced about a year ago, because of changes in parity.

Even so, this means Oregon wheat prices at harvest time are likely to be at least 20 cents a bushel under last year. They could be down a dime or so more, depending on what happens to the export program.

Feed grains

Supplies of barley and oats are likely to hit a new high in Oregon and the Northwest. These and other feed grains promise to continue superplentiful in most parts of the country, even though acreages of all but corn are expected to be some smaller this year.

Price supports probably will rule the markets in the Northwest. They are scheduled to be a trifle lower than last year most places. In general, this is likely to be another year when feed grains marketed through livestock will bring more than grain sold for cash although returns may not equal those of the past year.

Forage

Pastures and ranges in Oregon and across the country show good promise for the coming season. Moisture is adequate to excessive most places.

Hay acreage may be down some, but supplies are likely to be ample at prices not greatly different from last year's low levels.

Beef

Oregon cattlemen who stayed in the business through the rough going of past years are not sorry now. The highest prices in 5 or 6 years have brought many smiles. These have been marred only occasionally by scowls about foreign supplies attracted here by our higher prices.

Cattle feeders probably can count on fairly good prices to last through spring months. This year's big bulge in fed cattle marketings now seems likely to come after the first of July. Marketings this spring will be about the same as last spring if feeders stay by their April intentions about like they did last year. These same April plans would push summer and fall marketings of top grades fully a fifth above last year. This could lead to disappointing prices, especially if consumer demand falls off.

Ideas and opinions vary, but many

(*Continued, page 16*)

STRAWBERRY HARVEST, long a part of the spring scene on Oregon's farm landscape, holds renewed promise of profits for growers using modern production methods for high yields. California competition has backed off a bit as a result of last year's bad weather and glutted strawberry market.

TWO VERY DWARF apple trees (8-10′) achieved by different means. Left: Dwarf Starking Delicious on Malling IX rootstock requires support throughout life. Note steel fence post. Right: Same variety on the vigorous Malling XVI root with Clark's dwarf "stem piece" does not require support.

Dwarf Trees for Commercial Orchards

A small, well-anchored tree propagated on Malling rootstock may change orchard practices. Easier pruning, spraying, and harvesting will be possible.

DRASTIC changes in orchard management look likely with use of dwarf trees. Horticulturist Al Roberts and coworkers report that a small, well-anchored tree with a sturdy root system has been developed.

This means more trees per acre, a greater bearing surface, and a tendency towards earlier bearing. These factors plus additional economy of management may hasten a trend toward smaller trees in the orchard.

Results discussed are limited to performances of commercial apple varieties propagated directly on the East Malling apple roots IX, VII, II, I, and XVI. Also mentioned are those "built-up" with seedlings or selected vigorous roots and a "stempiece" of varying length for growth control or "dwarfing." Dwarfing by this means has come into use in an attempt to combine growth control with winter hardiness and better anchorage in the very small fruit tree.

Tree size: Growth control is the principal advantage of vegetatively propagated Malling rootstock and certain others. Individual tree yields (6 varieties on 8 rootstocks) during the 10-year period have been in proportion to size of tree. Increased yields are through the increased number of trees per acre and their tendency to bear earlier.

Per acre yields: To achieve the maximum effective bearing surface, individual tree yields and the number efficiently managed per acre must be considered. Growth controlling stocks can be used in these ways: Very dwarf (Malling IX) trees find a place in the close-planted (8′ x 15′) hedgerow; small semi-dwarf trees (Malling VII) can be planted in solid blocks at distances approaching 18′ x 18′, or can be used as "fillers" between trees on vigorous Malling XVI or seedling roots planted 36′ x 36′. Higher per acre yields can be achieved through use of growth-controlling stocks because of more trees per acre. Ex-

periments show a given acre covered by a bearing surface has a possible level of production that may be achieved with many small units or fewer larger units.

Fruit quality: Indications show that with proper management the better spray cover and light exposure from smaller trees may improve fruit grade. Quality varies with variety and rootstock combinations and needs further study.

Tree uniformity: Malling stocks tend to have greater uniformity, but a lack of uniformity in seedling roots has not been a serious problem. The same variation of individual tree yields found on seedling roots is found in some degree or a lesser one on clonally propagated roots.

Winter hardiness: Malling stocks in test plantings have shown damage in some instances, but hardiness has not been a problem. The injury was no more severe and in some cases less severe than that on seedling rootstocks.

Orchard management: Early-bearing, small growing filler trees increase the bearing surface of young orchards. Efficiency in pruning, spraying, and harvesting are advantages as the orchards reach maturity.

The most serious danger in considering use of clonally propagated materials, whether rootstock or trunk stock, is uniformity of the material itself. Each individual combination must be thoroughly tested on all points before wide acceptance is justified.

Cion rooting: Unless the graft union is at ground level or slightly above, the cion may root, taking over root functions. Selected roots can thus be lost if the trees are not properly propagated or planted.

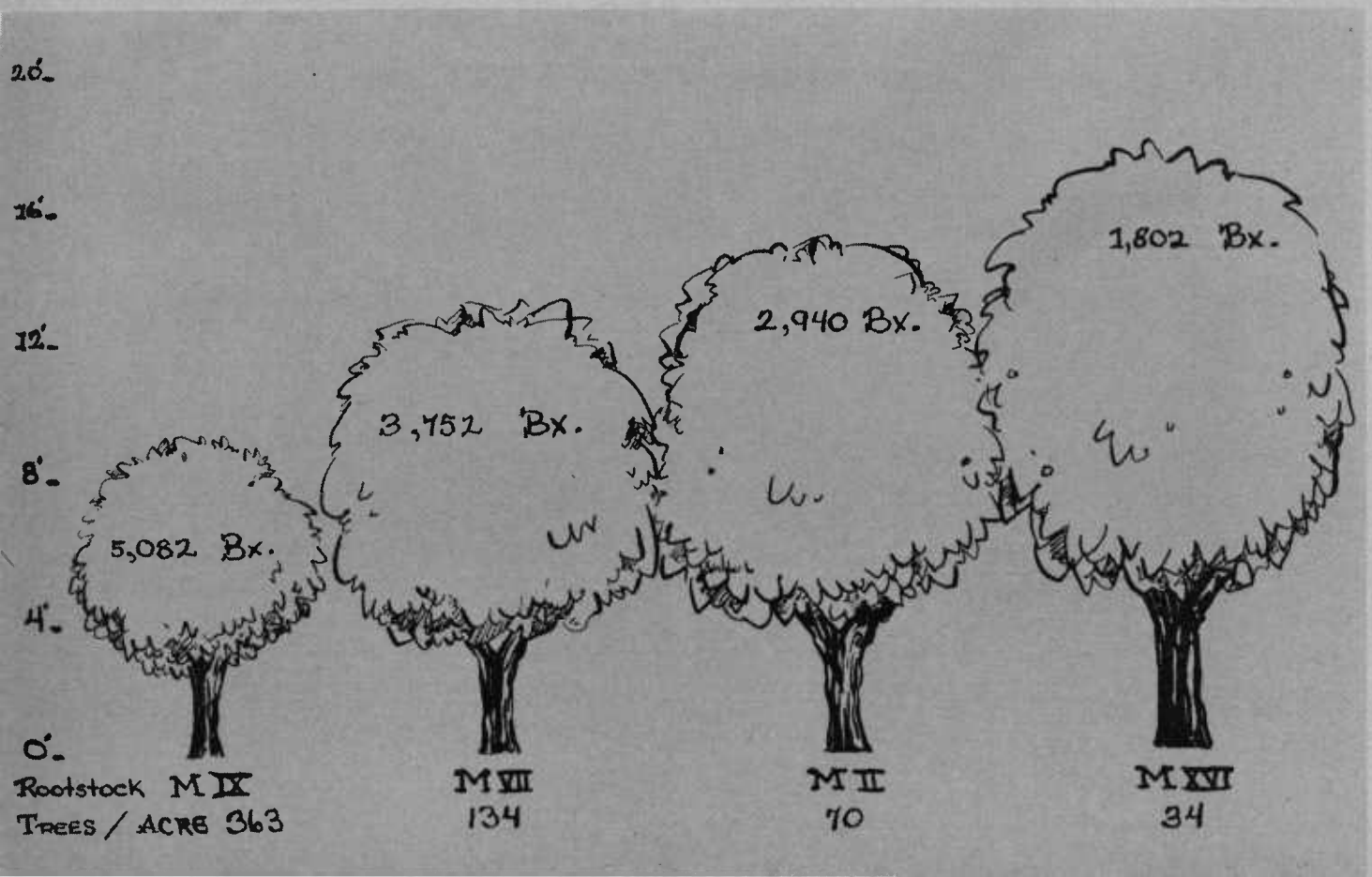
Anchorage: Small trees do not have an extensive root system. Amount of tree support depends on degree of stock dwarfing and tree age. Malling IX requires support throughout most of its life. However, root breakage may be the main cause of failure.

Problems of anchorage and hardiness in the very dwarf tree size have led to development of the "built-up" tree and its variations. Most successful has been one in which Malling XVI was used as a root to give better anchorage without breakage, a "stem-piece" (12 inches long) of Clark's dwarf for dwarfing and whatever cion variety is desired. This gives a fully dwarf tree, equivalent to that of Malling IX roots, that does not require support. However, it has the disadvantage of suckering at the ground line until the tree comes into bearing at 3 to 4 years of age.

Disease resistance: Certain Malling stocks, especially Malling I are susceptible to crown or collar rot; however, Oregon trees have not shown signs of this disease.

Other problems: Small trees with closer plantings and shallower roots require changes in fertilization, irrigation, and other management practices. Location, site, and soil have considerable bearing on adaptability of such management changes.

DIAGRAM SHOWS height, spread, number of trees, and total yield per acre of Golden Delicious on various Malling rootstocks during their first 10 years in trial orchards at Corvallis. Planting distances will accommodate tree size. Yields are shown by number of boxes that can be harvested.



Testing Center

Help for Wool

A NEW WOOL testing laboratory is nearing completion at Oregon State College. This facility, according to Carroll Fox, in charge of the college's technical wool research, should be invaluable in showing how the state's wool production and marketing can be made more efficient.

Oregon's many sheep breeds and varying climatic conditions produce wide variety in wool qualities. The wool laboratory will be able to help the industry by running tests on fleeces for an entire clip for staple length, fleece grade, and amount of clean-wool present.

Tests can be made by core-testing which will give an accurate estimate of the amount of clean wool in an entire clip. Knowing the percent yield from a core-test sample a producer will be in a more advantageous position to market his clips more efficiently. This in turn will mean a more accurate estimate of the grease price per pound.

Fiber length, spinning count, crimp per inch, fiber strength and color of grease and scoured wool will be established by laboratory tests on sampling of wool clips. Workers believe these improvements should help in marketing and manufacturing.

Tests run in the wool laboratory on wools shorn in 1957 gave workers these results.

Most wool clips are not long enough in their staple length. In one western Oregon wool clip the average length was 3.1 inches and predominantly a $\frac{3}{8}$'s-$\frac{1}{4}$ blood clip.

Length in Inches	Frequency
under 2	14
2.1-2.5	37
2.6-3.0	53
3.1-3.5	61
3.6-4.0	24
4.1-4.5	13
4.6 and over	7

AMOUNT of clean wool in a fleece is determined by washing a sample of grease wool as shown by a student working in the testing laboratory.

Production and Marketing

Core-testing will give a more accurate estimate of clean wool in an entire clip. Knowing percent yield from these tests will help producers in marketing clips efficiently.

A NEW instrument, the micronaire is used to determine average diameter of a wool sample.

Wool measured in the laboratory shows western Oregon wool coarser in grade than that from eastern Oregon. Researchers think that the trend towards cross-breeding has resulted in more variable wool clips for wool grades. Distribution is illustrated in the variability of wool grades within one 1957 clip.

Grade	Frequency
	Percent
Fine	3
½-blood	20
⅜-blood	58
¼-blood	15
Low ¼-blood	4

A STUDENT measures the individual staple length on 150 samples from yearling ewes. Those ewes having the longest staple length and fleece grade of fine or ½-blood are saved for replacements.

The amount of clean wool in a fleece is hard to measure, but with the new testing laboratory facilities more accurate amounts can be determined, workers report.

Sometimes a small fleece sample is washed by hand to estimate the total clean wool present in an entire fleece. However, use of a new "squeeze" machine will permit an estimate of the total clean wool in an entire fleece to be made on the shearing floor.

The following distribution indicates variability of clean fleece.

Clean-fleece Weight	Frequency
Pounds	
1.9-2.4	5
2.5-3.0	10
3.1-3.6	16
3.7-4.2	32
4.3-4.8	54
4.9-5.4	33
5.5-6.0	26
6.1-6.6	24
6.7-7.2	10
7.3-7.8	5

Such quality measurements as staple length, fleece grade, and clean-wool content on individual fleeces will be made in the wool laboratory. Results can be used in breeding projects to assist in selecting and propagating sheep for production of superior fleeces.

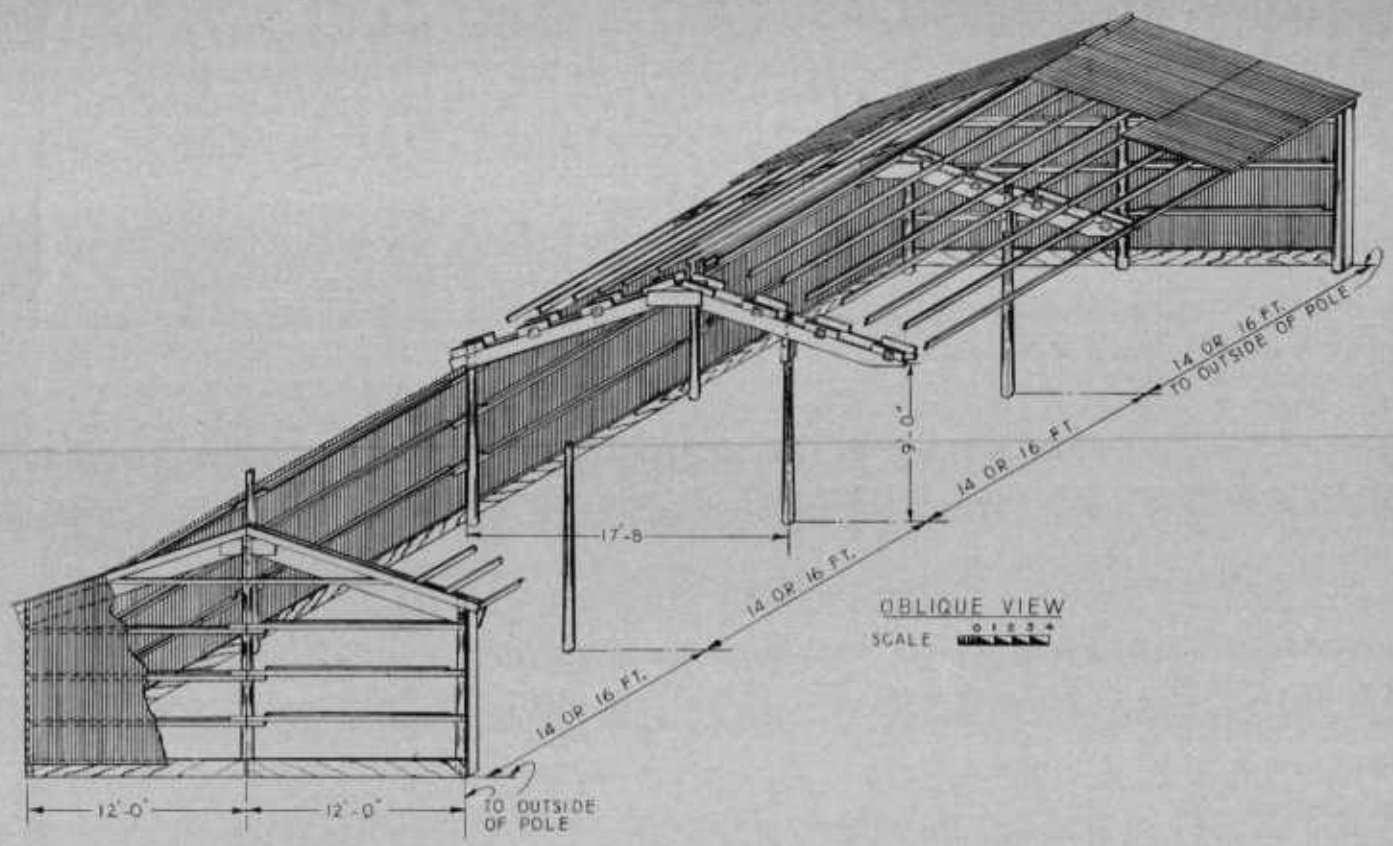


FIGURE 1. The building on the cover and the one shown above utilize cantilever 2 x 12 rafters with a 7-foot overhang and a 17-foot span between poles. The peak is midway between total span of rafters. This gives a 24-foot-wide building without using trusses, thus reducing material costs.

Cantilever Rafters Lower Building Costs

Farmers planning to build may find helpful ideas in this basic design. The multiple-purpose open shed is easy to assemble and economical to construct.

FUTURE farm buildings will be easier and less costly to construct using new methods and materials based on research by agricultural engineer, Leroy Bonnicksen. A major design feature is cantilever rafters in place of trusses.

The cantilever rafter and other new features in the open shed building design are described.

Cantilever rafters

Cantilever 2 x 12 rafters can be made by letting the rafter be continuous over a pole, shown on right pole in figure 3, and extended to a maximum of 7 feet. The 14-foot span between poles can be increased by 41% of the overhang to a maximum of 17 feet. Thus it is possible to increase the total span of a 2 x 12 rafter by 10 feet as shown in figure 3.

An attachment of the cantilever rafters to the poles is made by two ¾-inch bolts. A 2 x 6 bearing plate is fastened to the pole by a ¾-inch bolt. Screw-shank nails (40d) are used to hold the rafters and bearing plate in place until they are bolted. Avoid any bad knots or slope of grain at the outer edges of the rafter near pole attachment.

The rafter between the two posts can be straight or have a peak as shown. This peak may be off center if desired. It could be in the center between the two posts or in the center between the total span.

When no peak is made between poles a long rafter will be required. This length can be reduced up to 4 feet by making a 2-foot lapped splice in the overhang.

Cantilever rafters will carry the same uniform loads as simple supported rafters; however, more deflection and sway will occur in the cantilever rafters. This deflection is not considered harmful to the structure.

Concentrated loads, such as encountered when lifting heavy objects with a hoist, should be avoided on this type of rafter except near a post.

Because of greater loads imposed upon the interior pole, it should be a little larger in top diameter and placed deeper in the soil. Use weak-strength

concrete backfill to resist the increased uplift due to wind.

A double cantilever may be made as shown in the insert of figure 3. This allows a total span of 34 feet on the 2 x 12 rafter. In this particular case the tops of the poles should be at least 7 inches in diameter to provide a stiffness to the building against wind.

These cantilever rafters are much more economical, and are easier to build and erect in place than trusses.

Nailed peak joint

Figure 4 shows how the peak can be made by using 1 x 6's and 10d nails. Note that 1 x 6's are on both sides, and nails are only driven from one side. A 10d nail will penetrate the 1 x 6 on both sides, but will not protrude.

Screw-shank hardened nails are preferred for the joint.

Eight-penny nails will not be long enough to penetrate both sides and will require 20 to be nailed on both sides.

Using the 10d nail and driving from one side, these rafters can be made on top of one another.

Purlin ties

Purlin ties can be fastened to the rafters on the ground before they are lifted into place. Measuring, locating, and nailing are easier then than after the rafters are up. It is easy to lay the purlins on the rafters and fasten them when the ties are in place. Note that the tie over the pole has to be put on after the rafter is aligned and nailed to the pole.

These purlin ties fill up the void space and prevent roosting of birds. Alternate open spaces can be filled in by 1 x 6 boards.

Can increase span to 16 feet

In areas of light snow and wind loads either crosswise or lengthwise spans can be increased from 14 feet to 16 feet, but both spans cannot be increased to 16 feet together. In either case the 2 x 12 rafters should be made of construction grade (1500f) Douglas-fir lumber or equivalent. When purlins are increased to 16 feet, both purlins and 2 x 12 rafters should be of construction grade (1500f) Douglas-fir lumber or equivalent. The 24-foot truss span should not be increased.

These span increases will carry approximately 15 pounds per square foot

FIGURE 2. A 24-foot-wide loafing shed using cantilever rafters with the peak centered between the 2 poles gives a clean, open appearance due to no braces, and a sense of simplicity.

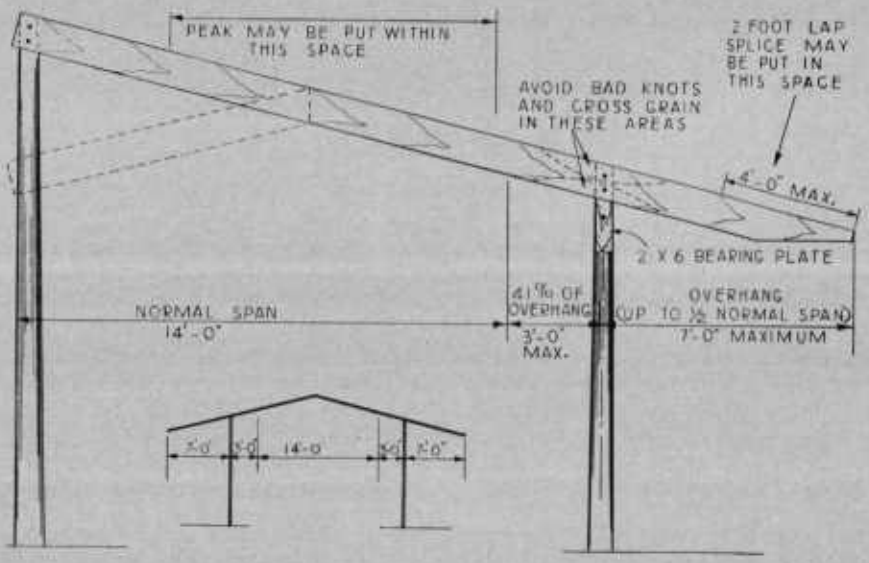


FIGURE 3. 2 x 12 cantilever rafters can increase the span between poles and total span of the rafters. This offers greater economy and ease of construction over trussed rafters formerly used.

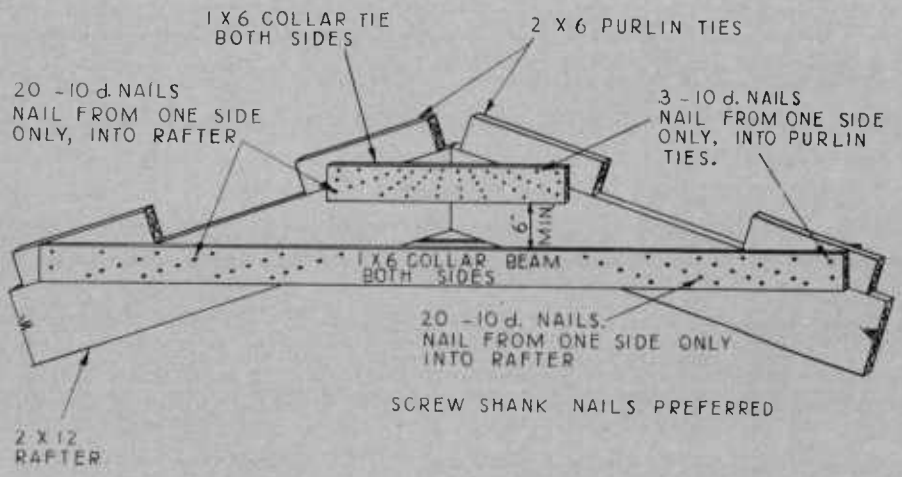


FIGURE 4. A nailed peak joint can be made by using 1 x 6's and nailing 10d nails from one side. The 1 x 6 collar ties can be extended to hold the 2 x 6 purlin ties in their proper place.

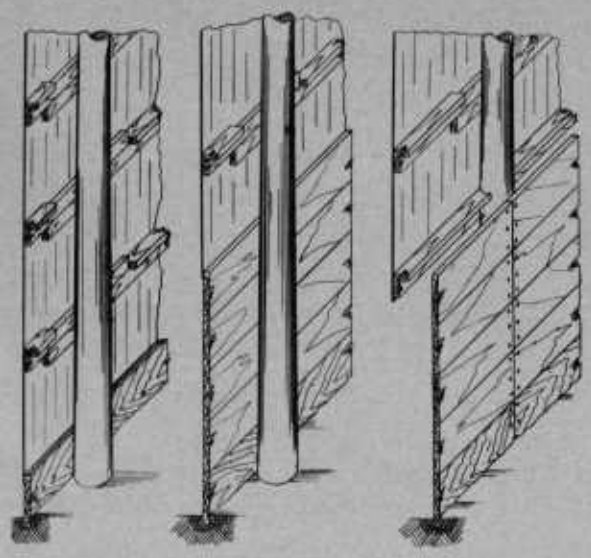


FIGURE 5. For machine sheds (left) one splatter board is economical. For animal shelters (like the one at right), inside splatter boards are best.

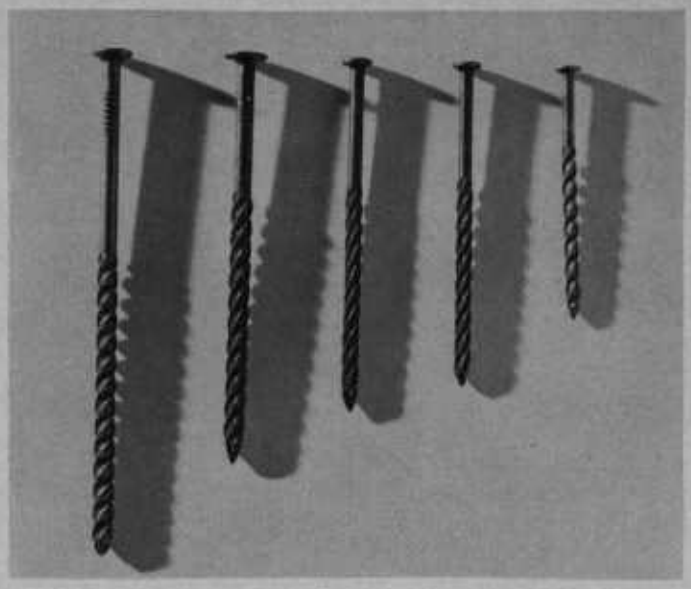


FIGURE 6. Screw-shank nails have a larger withdrawal resistance than smooth-shank nails. These harder, thinner nails, help to reduce splitting.

of snow load, but will have a greater tendency for sagging. This should not be very noticeable or harmful.

Plywood roofing

New methods of applying plywood roofing are being developed and include both dutch lap and corrugated lap. These methods require less material, and are easier and quicker to apply than other roofings.

Custom cut metal sheets

Both aluminum and galvanized steel in several patterns are available, custom cut to any length. This eliminates head laps and wastes due to odd spacing of purlins or length of rafters.

A new pattern on the market is combination of 2½" corrugations and 5V crimp. It uses a double V at each edge for better weather tightness and 2½" corrugations through the center of the sheet for strength. It is called the 4V-corrugated pattern.

Plastic sheets corrugated in similar patterns can be used as windows. Apply the same as metal sheets. This is a simple and economical way of putting windows in a side wall or a roof.

Footings and backfill

After holes are dug it is important to remove all loose dirt. Using the spoon type hand shovel is best for this job. Any loose dirt left in the bottom of a hole will soften when wet and cause settlement of the pole.

When crushed rock or gravel is used it should be tamped in 3-inch layers. Putting water in the hole and keeping its level above the gravel will help in tamping. Pea gravel can also be used as a footing and backfill material and does not require tamping.

The bottom of the hole does not need to be level. The center of the hole can be lower than the edges.

Splatter boards

Splatter boards are pressure-treated 2-inch lumber nailed to the pole. The siding material can be nailed on directly. Shown in figure 5 are three methods of applying splatter boards. The left is best when use of the building, such as for a machine shed, puts no pressure or materials against the side wall.

When use of the building, for instance as a shelter for animals, may cause materials or pressures against the side wall, higher splatter boards are necessary. They can be placed on the inside or outside of the pole, as shown. When placed on the inside, right view, a smooth surface that allows easier cleaning is provided, and pole attachment will be much stronger against side pressures. Also, if splatter boards are nailed to the inside, a means of ventilation is provided by the opening between the wall grits and boards. If this ventilation is not desired, the opening can be boarded in.

When splatter boards are nailed to the outside of poles, lateral pressures would all have to be held by the withdrawal resistance of the nails. Therefore, screw-shank nails are preferred for nailing to the outside of a pole.

In all cases lower splatter boards should be pressure-treated because of conditions favoring decay. The rest should be treated for longer life. Splatter boards may be left untreated when they are placed on the inside because of easy replacement and protection from overhang of the siding. Any splatter boards in contact with manure should be pressure treated.

Usually fence posts should be placed midway between the building poles to help support splatter boards. These posts should be pressure treated. In some cases the lower wall girt can be fastened to the top of such posts.

Screw-shank nails

Screw-shank nails are available and are recommended because they have a higher withdrawal resistance than smooth-shank nails, especially when driven into green lumber. They are also available in hardened steel, that allows a thinner nail for the same strength and prevents splitting.

The basic design of this building is described in Station Bulletin 557, "Multi-Combination Pole-Type Construction."

Pine in Valley Foothills?

Trial plantations demonstrate its ability to survive on the poorest sites and it seems to flourish during early life. Prospect for Christmas trees.

WE may soon see pine growing in the Willamette Valley.

Forester George Barnes says pine trees have a place in the foothills where Douglas-fir cannot survive. Because lodgepole pine can grow under all kinds of soil and moisture conditions it may establish a firm hold in the valley.

Douglas-fir dryland stock from Montana and Idaho has outdone local stock in survival, but growth has been slow. However, lodgepole pine from either the coastal areas or east of the Cascades has had more than a 90% survival over the first three years.

Lodgepole is small in comparison with the giant species of the state. Presently it is found at low elevations on the Pacific shore and at higher elevations, up to 6,000 feet, east of the Cascades.

Lodgepole varieties differ

There are great differences in tree form and foliage density of the two lodgepole varieties. The shore pine develops a larger stem and dense green foliage while interior stock has narrow stems and a thin yellowish-green foliage. Five years after planting in valley foothills, heights of 5 to 7 feet have been found.

Though the ultimate size of lodgepole in the valley is unknown, the shore pine variety already has some use as Christmas trees. Although Douglas-fir has been and will continue as a favored species, some of the pines find ready market acceptance.

Pine may become a favorite in the luxury trade where cultured trees and flocking treatments can bring premium prices. These trees respond readily to culturing practices. Internodal growth may be controlled by clipping the terminal buds, and lateral branches can be bushed up by shearing.

Christmas-tree farmers might well include some of this stock in annual plantings, and learn how to culture it to the best selling advantage. Nursery stock propagated from seed of parent trees selected for desirable form should also pay off in producing premium trees.

For wood production purposes, the future is not clear, says Barnes. Away from the heavy coastal winds great improvements in shore pine form can be expected. Some good specimens have been found in sheltered locations along the coast. Although shore pine is presently more luxuriant than the interior variety, the latter may finally prove superior in form, growth rate, and maximum size.

Improvement of poor sites for eventual Douglas-fir growth may also be accomplished by lodgepole planting. Pine root penetration into the dense clay subsoils of some sites may clear the way for Douglas-fir survival.

AN UNCULTURED shore pine 5 years after planting (left). Shearing 2 years ago would have produced a more bushy tree. The lodgepole pine (right) of interior seed source shows a crown of less density.

Wild Rose Can Be Controlled

Two years work shows that common rose plant can be completely eliminated with the right foliage spray applications. Treatments made after May 1 have given the best kills in experimental trials.

TROUBLESOME wild rose plants can be completely killed with a foliage spray. Based on two years research, D. W. Hedrick, range scientist and W. R. Furtick, agronomist found that rose bush crowns were killed with a spray mixture of 2 pounds 2,4-D and 2 pounds 2,4,5-T in 100 gallons of water. Application was made between May 15 and July 1.

Wild rose is common on non-irrigated grazing lands in the Willamette and Umpqua river drainages. Although a few rose plants may provide useful green browse for sheep during the dry summer months, it soon becomes too thick for grazing control.

It rapidly covers farm land used for pasture, but on these areas is easily controlled by plowing and/or mowing.

Rose plants naturally invade hill pastures since they appear as one of the early steps in the return of the open grasslands to forest. It is possible that fire was originally an important obstacle to the spread of rose. Rank grasses growing with rose bushes would tend to make a hot fire which would completely kill the tops and possibly weaken the root when used repeatedly year after year. However, fires also destroy the entire season's forage crop and are seldom practical to use on medium to high yielding pastures.

RESULTS of spraying rose too late, on October 1, 1956. Note incomplete top kill and vigorous basal sprouts. Unless new sprouts die the following year they actually increase size of each bush treated.

Herbicidal sprays were tried periodically during the past 10 years, but generally without promising results. To determine the most susceptible periods for treatment, spraying and cutting trials were started in the spring of 1956 and carried through the summer on biweekly to monthly intervals.

Cutting treatments, at least when applied only once as in these trials, were completely ineffective for rose control. When cut early, profuse basal sprouting occurred the same season and if cutting was delayed until later in the summer vigorous sprouts appeared the next year. Of course, grubbing or plowing and disking removes the plant base and is the most effective means of control where pasture renovation by seeding becomes necessary or desirable.

A "brush-killer" mixture of 2 pounds propylene glycol 2,4-D plus 2 pounds of the same ester of 2,4,5-T in 100 gallons of water was applied with a hand sprayer until foliage was thoroughly wet.

Spraying dates determined

The best dates for spraying ranged from May 15 to June 15 in 1956. Based on these results more trials were arranged in spring of 1957. Spraying

was started on May 1 and continued at biweekly intervals through July 1. The same formulation, rate, and method of spraying was used both years. Results from 1957 treatments were evaluated along with a reinspection of the 1956 spraying in April, 1958.

Kills were more complete in 1957, especially when spraying was done after May 1. More basal sprouts were produced from May and June treatments, but all new canes had twisted and malformed tips and were completely dead when checked this spring.

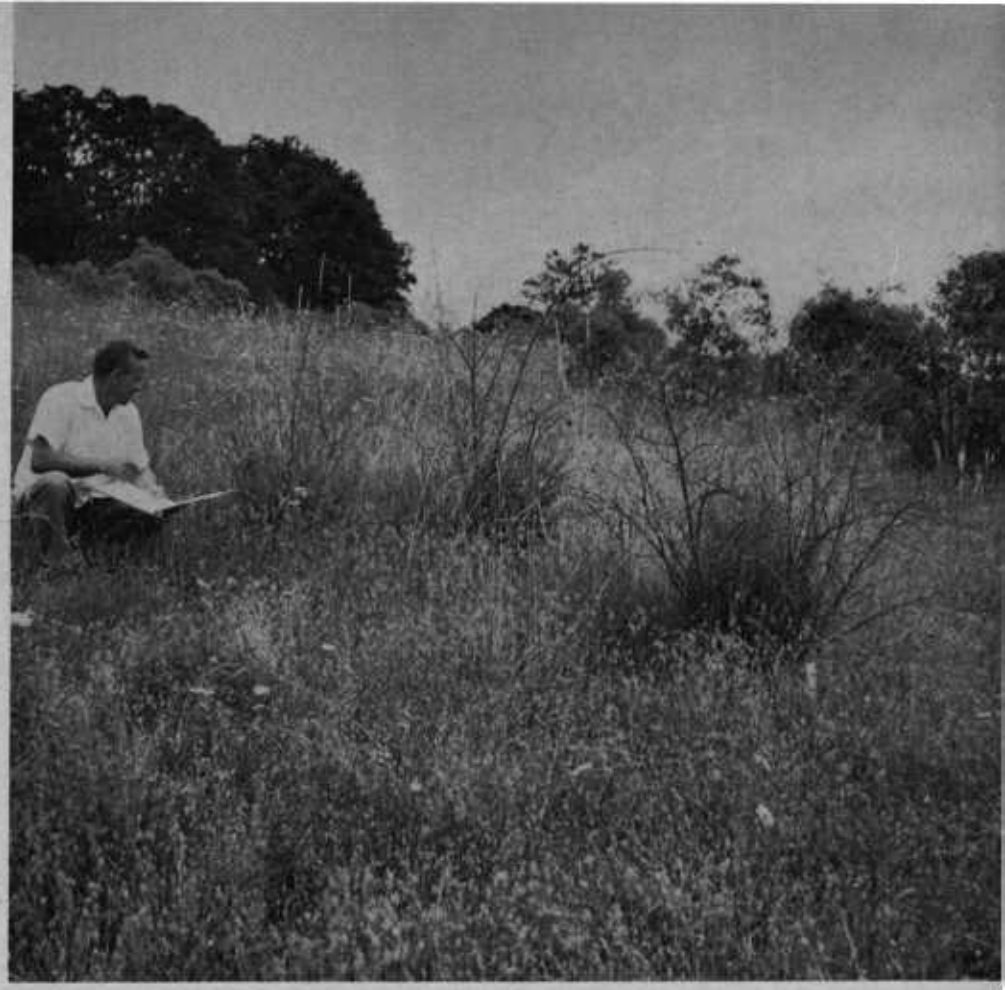
Spraying data were obtained at Corvallis and workers say the date would need to be advanced a couple of weeks for Douglas County and perhaps retarded a few days or a week for northern portions of the Willamette Valley.

Resprouting usually weak

Tests show that resprouting from the base can be expected the same season but will generally be weak and in some cases (1957) new canes may be dead by the end of the first year following spraying. Plants sprayed after July 1 generally show only a partial top kill, and although basal sprouting may not occur the year of treatment it usually will be substantial the next growing season.

In both years the large plants (older) appeared more susceptible to a complete kill than small (younger) ones.

Two grazing management practices recommended to keep rose in check after spraying or in lightly infested pastures are: (1) Practice rotation grazing. It is easier to keep good forage plants growing vigorously when heavy grazing for short intervals is alternated with complete rest periods. The rest periods allow the good species to recover and maintain a vigorous root system which is necessary if the grasses are to compete successfully with brush plants. The heavy grazing encourages the use of less palatable weeds and young rose bushes at a time when clipping or browsing is most effective in keeping the new plants down; (2) Graze after seed maturity. At this time grazing is not damaging to grass plants protected during their flowering period and rose bushes after the grasses dry, provide some usable green foliage fairly high in protein and vitamin A.



A JUNE 1 application gave an excellent kill. Vigorous perennial grasses are growing in the dead rose clumps. Left background is typical of oak-woodland hill pastures subject to invasion by rose.

MID-JULY spraying gave fairly good foliage kill but limited basal sprouting. In both years effectiveness dropped off by July 1, indicating late May and June spraying is best for the Corvallis area.

Research Briefs

New Results From Silver-top • Feed Mix Developed for Coccidia • Grass Seeder Conserves Soil Moisture

New Results From Silver-Top Research

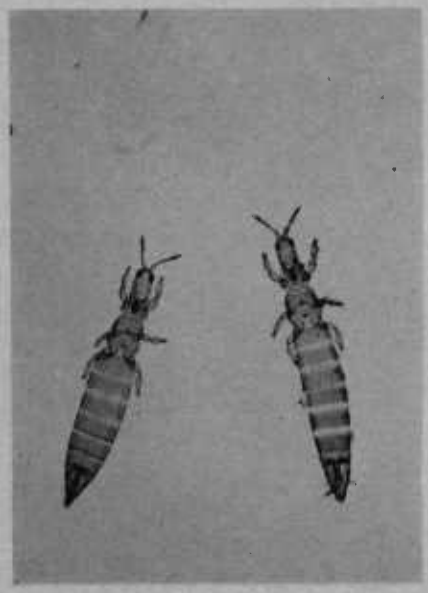
SILVER-TOP in grass seed plantings has been controlled with DDT in field trials conducted by entomologists G. W. Krantz and E. A. Dickason, and USDA plant pathologist J. R. Hardison.

Silver-top produces a shriveled stem tissue above the uppermost node, resulting in death of stem and inflorescence above the node. The dead part, bleached white by sunlight, gives the name "Silver-top."

Though some workers associate mites and a fungus (fusarium poae) with Silver-top, Oregon workers believe thrips may be the principal agent.

In eastern Oregon during 1955, culms of Merion bluegrass showing Silver-top symptoms contained numerous thrips under the leaf sheath near the uppermost node. Killing the thrips by spraying with 1 pound DDT plus 4 ounces parathion per acre stopped the trouble.

In material from Alta fescue and Chewings fescue fields of western Oregon, only 3% dead stems were infested with the fungus; therefore, some other agent killed 97% of the heads. Hardison says mites and fungus appear to be secondary invaders only.



TWO SPECIES of grass thrips found in Silver-top are Aptinothrips stylifer (left) and A. rufus.

Results suggest two species of nonmigratory, wingless thrips as being responsible for Silver-top in Oregon. In 1956 and 1957 thrips were found under the leaf sheaths of grasses, particularly in association with tender stem tissue immediately above the uppermost node. Plots in which insecticides killed thrips also showed reduction in incidence of Silver-top; however, workers report that an exact relationship between these insects and stem injury has not yet been fully determined.

DDT and heptachlor have been evaluated for 2 years, and both appear promising for Silver-top control. For 1958, researchers recommend an application of DDT at the rate of 1 pound per acre, applied in late April or early May.

Heptachlor is a possible substitute for DDT on fine-leaf fescues because DDT frequently causes a leaf scorch on red fescues. Applications of 4, 8, and 16 ounces were excellent for thrips control and reduction of Silver-top. An 8-ounce rate of heptachlor is suggested for trial on fine-leaf fescues.

Feed Mix Developed For Coccidia Control

A FEED MIXTURE containing coccidia can be given young chickens for coccidiosis control, report veterinarian E. M. Dickinson, and coworkers.

For the feeding program a measured composite of coccidia culture and a suitable feed were mixed and fed directly to 5-10 day old chicks. Number of coccidia that must be consumed to produce the needed resistance against severe infection was determined before feeding was made.

Twenty-four to 36 hours after feeding coccidia mash the birds were given an additional feed containing .05% sulfaquinoxaline. This combats severe coccidiosis that can develop with the large dosages of coccidia needed for immunity.

TECHNICIAN preparing proper dosage of coccidia in feed to immunize given number of chicks.

Workers fed chicks coccidiostatic mash for 6 days, then discontinued. Following this feeding plan, chicks have resistance to the 5 common coccidia species used in the mash.

Field trials show that other feed should be taken away from chickens two hours before they receive coccidia feed. This insures a uniform consumption.

To get the best feeding results litters should be cleaned out or covered with 1 to 2 inches of clean litter when hoppers are taken out to prepare the coccidia feed mixture.

Researchers find that occasionally a grower starts chicks on the coccidiostatic mash. Under such conditions some of these feeds will prevent coccidia feed from initiating the infection necessary to stimulate immunity.

Coccidia feeds are still in experimental form and not available for general use.

Oregon Grass Seeder Designed to Conserve Soil Moisture

RANGE-SEEDING is being revolutionized with a machine using principles established in basic experiments on seeding methods for depleted western sagebrush-bunchgrass ranges.

The machine, developed by D. E. Booster, agricultural engineer, employs principles developed by range researchers D. N. Hyder and F. A. Sneva.

Wheel makes 6-inch track

Seed is dropped in pressed furrows on firm soil, then covered with loose soil. Presswheels do double duty by firming soil prior to seed placement, and opening furrows. Each wheel makes a track 6 inches wide. A V-shaped rib around the center presses a seed furrow 1 inch deep in the center of the wheel track. Grass seeds are dropped into the seed furrows and covered by drag links.

The seeder has sturdy construction and will withstand rough treatment. Each presswheel is individually suspended to permit operation on rough terrain. A compression-type coil spring transmits frame weight to presswheels. The experimental model is an 8-row machine weighing 2,600 pounds. Extra weight, up to about 600 pounds per wheel, may be carried in the weight boxes on the frame to give desired wheel track depth under different soil conditions. A wheel track 2 inches deep seems satisfactory for soft seedbeds. On firm seedbeds the wheel tracks may be shallower, but seed furrows will be the full 1-inch depth.

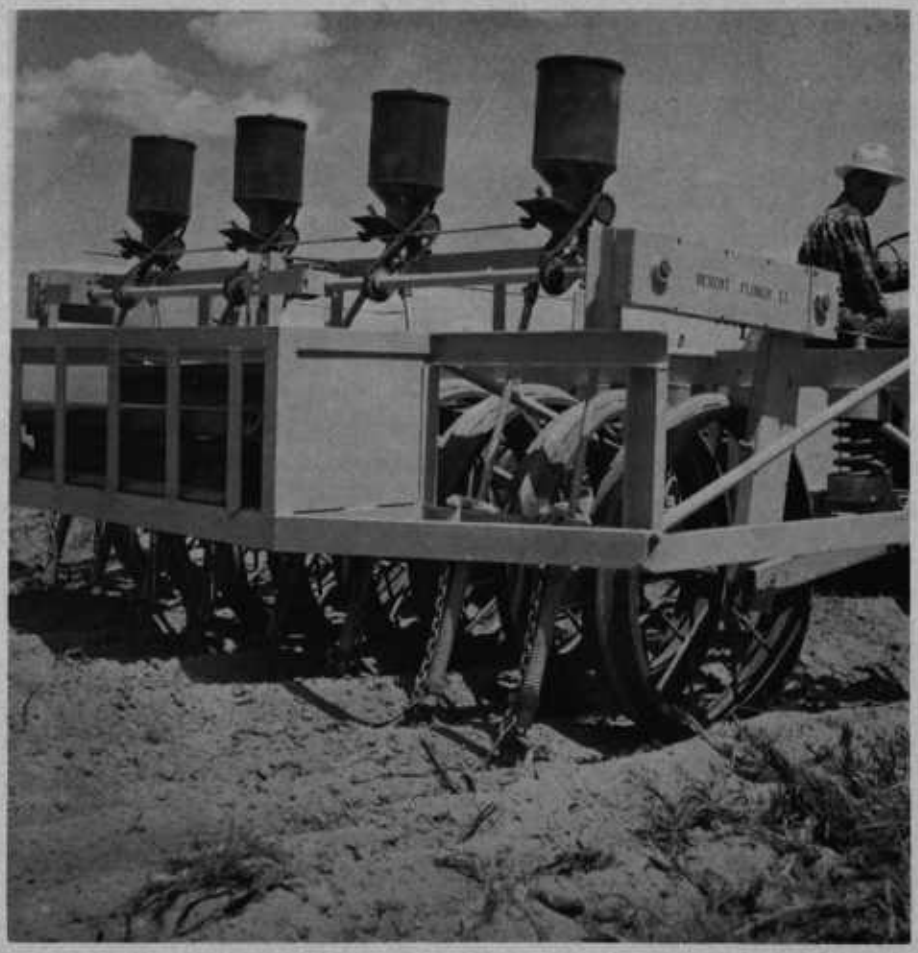
Presswheels drive units

Ground-driven seed-metering units are used. Each of the two outside presswheels drives seed-metering units for half the machine. Seed from the seed-metering units free falls through seed tubes into V-shaped furrows in the center of the wheel tracks. Tension-type, close-wound coil springs are used as the lower seed tube parts that protrude below the seeder frame. The springs snap back to original positions after deflection by rocks or brush. A drag link at the lower end of each seed tube covers the seed. The individually suspended wheels are spaced 12 inches center to center. Seed is dropped behind these wheels in pressed furrows and then covered with loose soil by the drag links. Fairly heavy drag links are required for closing seed furrows on firm, moist seedbeds. Standard grain-drill drag chains give satisfactory coverage on dry, soft seedbeds.

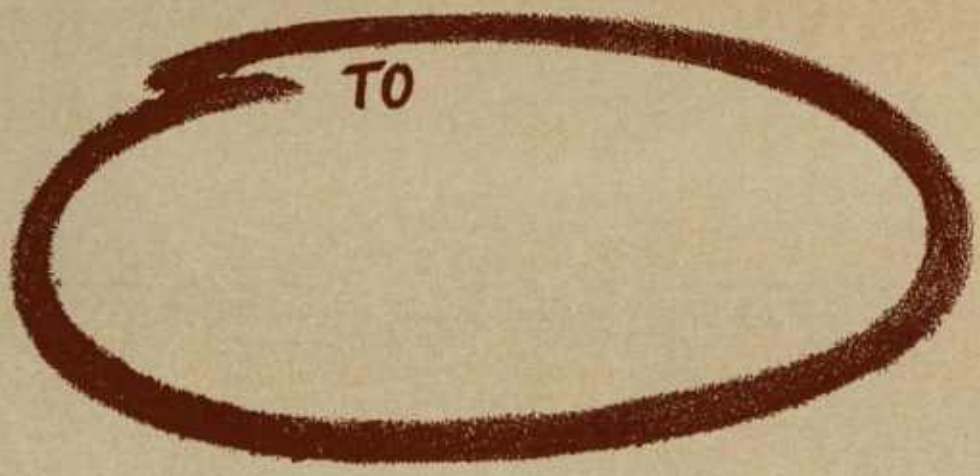
During September and October of 1957, the Oregon Grass Seeder was used in 13 seeding trials in areas around Madras, Burns, and Fort Rock. Standard crested wheatgrass was seeded in nearly all of the test areas. Results of these trials are not available yet.

The greatest hazards in range reseeding are drought and improper seed coverage. These factors are related in part and emphasize the need for equipment and seeding methods to conserve soil moisture, and seed placement at a proper depth.

Soil firming and furrow placement of the seed has given faster emergence, 2 to 3 times more survival, and higher yields after stands are established. These are important reasons why the new Oregon Grass Seeder looks like a good prospect for depleted soils.



SEED BED preparation and elimination of sagebrush competition have been accomplished by the use of a heavy-duty disk. The seeder leaves a rough ground surface in soft beds to prevent erosion.



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Farm Outlook . . .

(*Continued from page 3*)

recent offers on calves and yearlings have looked almost too good to last through the year. As a result, many sales for fall delivery have been contracted. Odds are that animals finished off grass this summer will not make the returns they have made in the past year or two. At the same time, cow and heifer prices are likely to hold fairly firm.

Hogs

Pork supplies may show less-than-usual decline into summer months due to the larger late winter farrowings and longer feeding of earlier litters. Highly favorable hog-feed price ratios of the past several months are expected to bring rather sharp increases in slaughter this fall and next spring.

This means we probably are near or past the most favorable part of the current hog cycle. It has already lasted longer than thought likely last summer, as hog producers responded more slowly than usual to the improved conditions.

While hog profits appear to have been too good to last through the next year, the longer-term outlook for efficient Oregon producers is still good. Oregon and other Pacific Coast states consume many times more pork than they produce. As a result, we have the highest hog prices in the country. Also now we have a big supply of barley priced fairly competitively with feed grains in other parts of the country.

Many think the hog business of the future will develop along the lines of the broiler industry. They forsee specialized operations with scheduled farrowings moving through feeding pens on pelletted feeds under prearranged contracts with packers. Persons interested in the hog business will do well to make careful study of these possibilities.

Lambs

Prices are expected to decline seasonally as marketings increase but should hold above last year most of the time through the spring and summer.

Poultry

Several signs point toward a good year for egg producers. First, the hatch of egg-type chicks is running only a little above last year's very low level. Second, very few eggs have been stored this spring and holdings in both shell and processed forms are small.

There are also some favorable signs for the turkey business in 1958. Heavy movement out of storage pulled April supplies of frozen birds below a year earlier for the first time in many months. Also, the nation's hatch of heavy breed poults has been sharply reduced. This means less early slaughter this year and an improved storage situation this fall.

Meanwhile, the broiler hatch has been running well above a year ago, but markets have been absorbing the increases so far at fairly satisfactory prices without building up frozen stocks.

Wool

Depressed wool prices are reflecting the decline in mill use during the last half of 1957. Use picked up some in January and February, but such changes are often not reflected in raw wool prices for several months.

Government payments on the 1958 clip will be based on the same incentive level as last year, but best returns will again go to those who sell for highest prices.

Fruits

Late March and early April rains hit California stone fruits hard, but peaches in Georgia and other parts of the South are off to the best start in years.

California strawberry growers have cut their acreage nearly a fifth since last year's low prices and bad weather hurt them. This cut is the first since plantings started increasing in that state about a decade ago. Also, brightening strawberry market prospects for the current season are the smaller stocks of frozen berries now on hand.

Potatoes

Growers in late spring states exceeded their earlier planting intentions, but summer market prospects look fairly good. Heavy plantings of late potatoes could cause trouble next fall and winter.