

Farm Layout

and Farmstead



*for irrigated farms in
eastern and central Oregon*

by A. L. Pulliam

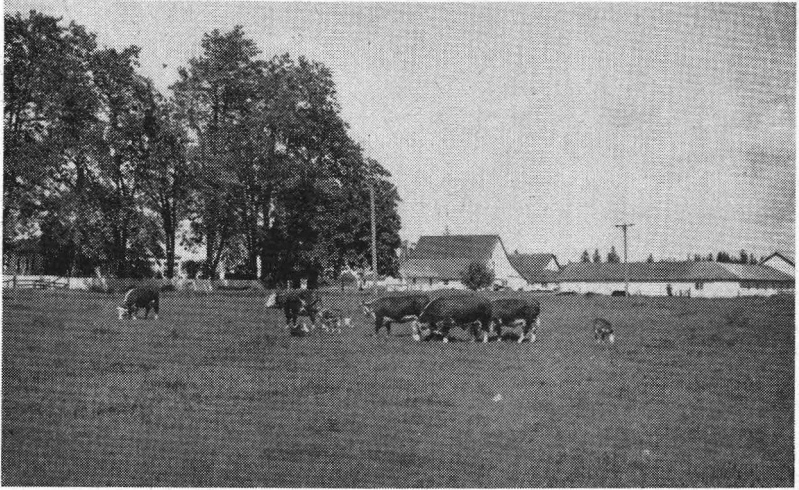
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Rural living at its best. A fine farmstead is worth working and planning for.

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Farm Layout

and Farmstead Planning

For Irrigated Farms in Central and Eastern Oregon

A. L. PULLIAM*

Opportunities

FARMERS in newly settled farm communities are in a position to plan and build efficient, attractive farmsteads. Such planning will directly affect the future progress of the community and the people who live in it. Farmers who own farms with farmsteads already constructed are able by long range planning and gradual change to increase materially the efficiency of their farm operations. When a farmer plans his farmstead he not only determines the course of his own operation and profit, but indirectly affects the value of his real estate by making the community more attractive. The attractiveness of the community is often the determining factor in inducing new people, business, and industry to settle in it.

Need for Planning

Farming is a competitive business. Producers in each community, state, region, and country compete for their share of local, national, and world markets. Farmers, if they expect to operate at a maximum profit and compete for their share of domestic and world markets, must have their farm, buildings, and equipment arranged and designed for the highest possible operating efficiency.

Planning needed to reduce labor costs

In many enterprises, such as dairying and fruit and vegetable production, labor represents 40 to 70 per cent of the cost of production. Farmers who operated during wartime will recall the importance of efficient use of labor during that period of labor scarcity. Regardless of the availability of labor in the future, wage rates are likely to decline slowly, if at all. Now, more than ever before, farmers realize the need for planning and arrangement of their farm plant for efficient use and maximum returns from labor.

* County Agent-at-Large, Oregon State College Extension Service.

Value of Planning

Manufacturers have been known to construct complete new plants if they could effect a 1 per cent saving in cost of production through proper design and arrangement of production equipment and operations.

A Vermont¹ dairy farmer with a herd of 22 Jerseys rearranged his dairy barn and changed his chore routine to save two hours per day on his chores. This saving amounts to 730 hours, or 2 MONTHS AND 13 DAYS MAN LABOR SAVED IN A YEAR'S TIME.

A Minnesota² dairyman moved his milkhouse 70 feet nearer his barn and saved 20 miles of walking and 1 day's time per year.

The machine* labor necessary to grow and harvest the 1946 crops has been calculated for two 160-acre Deschutes County farms. Because of a more efficient field layout and other farm management practices, one farm with 9 more crop acres than the other was found to require 56 hours less machine labor for the year.

Labor saved by planning may be used profitably

Aside from the money saving involved, the saving in labor evidenced by these examples means that the farmer can use the time saved to:

- ▶ Increase the size of his business.
- ▶ Improve the quality of his products.
- ▶ Improve his home, work on civic affairs, or spend more time with his family.

Value of an attractive farm home

Planning of an attractive, comfortable farm home has its own particular value. A farmer's home is both his business headquarters and the center of his family activity. An attractive farm home will be a special inducement for the young people to spend more of their time there and to bring their friends home for a good time. It may be the determining factor as to whether a farmer's son remains on the farm or becomes a city dweller. Farmers are in the happy position of being able to have most of the comforts found in the city with all the advantages of living in the country. Satisfaction and pride in a fine farm and home often are, and rightly so, just as important to farm people as profitable business operations.

¹*Labor Saving Through Farm Job Analysis—1. Dairy Barn Chores*, by R. M. Carter, Vt. Agr. Exp. Sta. Bull. 503, June 1, 1943.

²*Farmstead Planning*, by E. B. Cleland, Minn. Ext. Fold. 135.

* Refers only to machine operations necessary to grow and harvest a crop plus a man to operate the machinery.

Purpose of this bulletin

Because of the wide variety of conditions to be found on different farms, it is the author's purpose to bring to the reader some of the main principles to be considered in layout of the farm and planning of the farmstead. A number of possibilities and alternatives that may be adapted by the reader to his own farm conditions are offered in this bulletin. It is hoped the reader will be able to use this material to solve his problems in balancing the many factors to be considered in farm planning.

Choice of a System of Farming

The first step in farm planning is choosing the system of farming. Farming practices associated with the system the farmer chooses will largely determine the farm and farmstead layout. For example, the arrangement of the farmstead and design of the buildings would be quite different on a dairy farm than on a farm where crops are the main enterprise.

Farm layout should provide flexibility in use

Layout of the farm itself and location of the buildings should provide flexibility, should a farmer later decide to change his system of farming. Low fruit prices might make it advisable for a fruit farmer to add dairying to his farm business. If his farm buildings are located in the center of his road frontage, rotation and access to his pastures will be much easier. In addition, such a farmstead location gives the farmer maximum room to expand his lots and corrals and add more buildings if he desires.

Farm layout for maximum soil building practices

Rotation of pastures over all the farm is one of the fastest means of building soil fertility. Here again, location of the farmstead in the center of the road frontage provides the flexibility that makes such a practice possible. A farmstead located at the end of a mile-long farm would make pasturing at the other end impracticable. Fencing costs and travel to a pasture a mile away would usually be too great for desirable profit. As manure is seldom hauled such a distance, crop yields are usually lower in fields farthest from the farmstead. Good farm arrangement will make it possible to carry out efficient, profitable farming practices.

The Farm Survey

After the choice of a system of farming, the next step for a farmer who has not yet laid out his fields is to obtain a contour map of his farm. In many irrigated areas contour maps have already been made of almost all farms. These maps, or assistance in getting one, may be obtained from the local county agent.

Use of a contour map

The information provided by a contour map will be useful to determine whether there is more than one good way to lay out the fields and irrigation system. Assistance from an irrigation engineer may be obtained to lay out the farm irrigation system. He may also help determine the logical field boundaries.

Some flexibility in field layout is usually possible, depending on the slope of the land. Two or three desirable farmstead sites are quite often available. If there is enough flexibility in field arrangement it should be possible to take advantage of the most desirable farmstead site.

Selecting the Farmstead Site

It is usually desirable to locate the farmstead adjacent to a main traveled road. Accessibility to the school bus and power and telephone lines, ease in marketing of farm products, and the availability of a good road at all times are all big factors in such a location. In the case of large farms, the operating efficiency that results from the farmstead being near the center of the farm usually outweighs the advantages of its being close to the road.

Corner crossroads location not desirable

Location of the farmstead near a corner crossroads has the advantage of access to two roads and more than one entrance to the

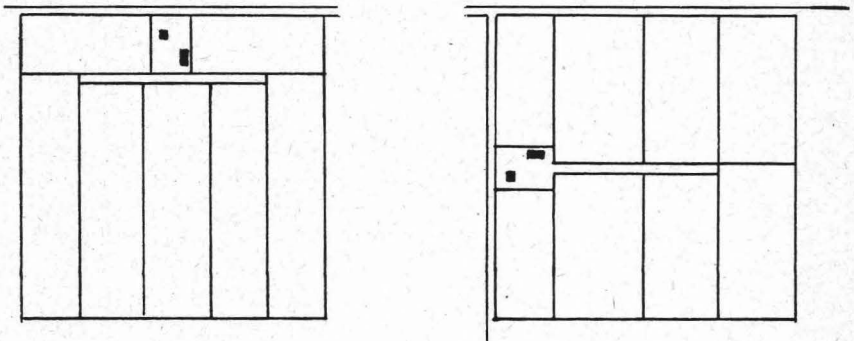


Figure 1. 160-acre farm. Farmstead located in center of road frontage.

farmstead. The additional field travel such a site makes necessary, however, far outweighs this advantage. Further, a corner site provides only half as much room for expansion of corrals and pastures near the farmstead as a site in the center of the road frontage.

Location of the farmstead near the center of the road frontage is especially desirable for a livestock or dairy farm. Central location (1) provides easy access to all fields from a central lane; (2) provides expansion room for corrals, and rotation of night and intensive pastures; (3) provides maximum flexibility for change in operations; and (4) keeps field travel to a minimum.

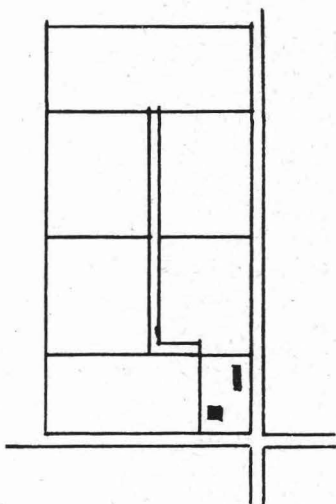


Figure 2. 80-acre farm. Corner farmstead location.

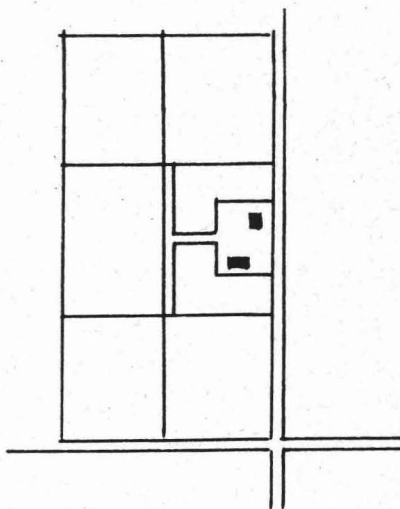


Figure 3. 80-acre farm. Central farmstead location.

As compared to the central farmstead location in Figure 3, the corner location in Figure 2 would require approximately 70 per cent more travel from the farmstead to the fields. With a central location less distance is required to haul manure and other heavy loads, rotation of pastures is easier, stock travel less distance to a central water supply, and there is less lane fencing to build and maintain. Only in exceptional circumstances should the corner location in Figure 2 be chosen.

Good drainage is important

The building site should be well drained. A gently sloping knoll is the best location. Good drainage is essential for family health and

proper sewage disposal. Good drainage is also desirable for the location of lots and corrals. If an otherwise desirable site does not have sufficient drainage, it is often possible to do some ditching, filling, or tile laying to correct the fault.

Water supply and irrigation

Depending on the locality, the water and irrigation supply may be one and the same source. If farmers depend on the main ditch to furnish stock water, and if the supply is not too plentiful, it is wise to locate the farmstead reasonably close to the point of water delivery. Such a location would keep ditch absorption and loss between point of delivery and the farmstead pond at a minimum. It would also be more convenient from the standpoint of general farm irrigation and especially for irrigation of garden, orchard, and pasture near the farmstead.

Use of natural windbreaks

Although irrigated sections generally have but few natural windbreaks, a grove of trees or a hill is a big advantage in saving feed and fuel if such a windbreak is available. Too often such a windbreak is not located properly for use. It is usually a better practice to put the farmstead in the most desirable location, then plant a windbreak where it will give maximum protection.

Nature of the soil

Good soil is always desirable for the orchard and garden. This is usually a minor factor, however, unless the best farmstead site happens to be on unusually sandy or stony soil. Average soil and very often poor soil can be brought up to a highly productive level by the use of manure, commercial fertilizer, green manure, and cover crops.

The Final Decision

The farmer must balance desirable field layout with the essential factors of a good farmstead location.

The farmer's final decision on his total layout problem will determine the efficiency in the use of his labor and irrigation water for as long as he operates the farm.

How Much to Invest in Buildings?

The question of how much money to invest in buildings is one of the most important decisions a farmer has to make. It is so important, in fact, that the decision he makes may well determine his course of progress as a farmer.

Farmstead investment in new communities

In newly settled communities there are so many uses for a farmer's available funds that the matter of investing those funds wisely is of extreme importance. Without question it is desirable to invest capital where it will be the most productive. Most farmers will agree that it is desirable to maintain a reasonable standard of living even while becoming established in a new community. Such a standard would include a comfortable home for the family and educational opportunities for the children. It need not mean an expensive home. On the contrary, it may be a temporary home built with a minimum of expense. Your county agent can supply you with plans for "Add To" houses. These houses are especially designed to be expanded as the family grows and more funds are available for building.

Expensive housing of livestock not necessary

Experiments have shown that expensive housing is not necessary for livestock. In a dry climate beef cattle need only a windbreak or an open shed. Stanchion barns or milking parlors on dairy farms must conform to certain regulations if Grade A products are sold, but they need not be elaborate. Experiments have shown that dairy cows that get plenty of exercise and are housed in open sheds usually have longer productive lives.

Portable buildings are usually best for hogs and growing poultry. With laying hens it is a question of whether the farmer wants only a small family flock or a farm flock of 500 hens or more. Housing is relatively standard for each size unit.

Crop storage merits careful consideration

With grains and potatoes storage becomes a factor. Here again there is a great deal of flexibility in management practices. The cost of storage will rarely be justified to the grower of small acreages of either potatoes or grain. Repair and maintenance, insurance premiums, taxes, and interest on the investment are all annual expenses and charges on buildings that must be met. These yearly expenses vary between 5 and 10 per cent of the original cost of the building, depending on the type of construction.

For example: A building costs \$1,000 to construct. The building would have to earn \$50 to \$100 per year before it would even begin to pay for storage of grain. In many years the trend of the market would be such that it would not pay to store at all. During the years the farmer decides not to store, the building would be idle unless it could be used for something else. Thus, IT IS EVIDENT THAT A CROP FARMER SHOULD CAREFULLY CONSIDER SUCH FACTORS BEFORE HE CONSTRUCTS STORAGE FOR HIS CROPS.

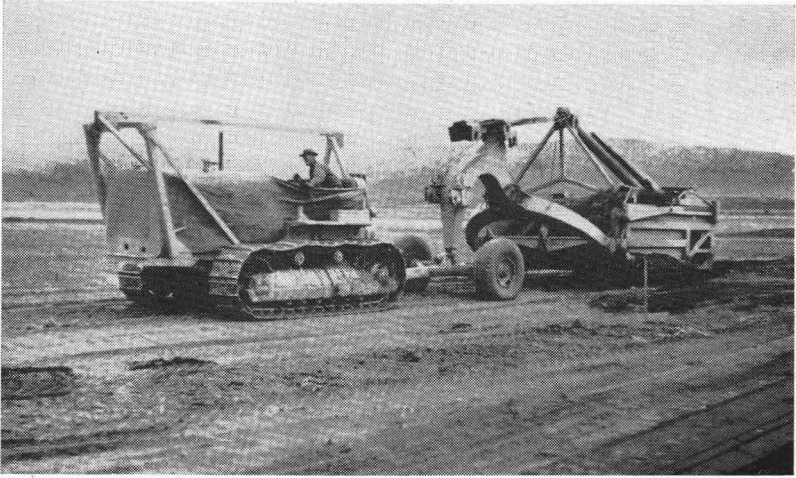


Figure 4. An example of productive use of a farmer's capital funds. Land leveling will bring fast returns through more efficient use of irrigation water and higher crop yields.

In some areas lack of marketing facilities may require that some farm storage be built. Storage for grain to be fed on the farm is usually desirable. Even then it is rarely necessary to provide storage for a full year's grain supply.

Use capital funds for most productive returns

In newly settled communities farm operations are flexible enough and building requirements are such that it is possible and desirable for farmers to expend their investment capital for its most productive uses. Investments in land leveling, fertilizer, seed, equipment, and livestock usually bring the most immediate returns. Livestock involves some housing, but the initial requirements may be met by temporary housing until farm income allows the construction of permanent buildings.

Construction of permanent buildings

WHEN A FARMER IS READY TO CONSTRUCT PERMANENT BUILDINGS, HE SHOULD CALCULATE HIS REQUIREMENTS VERY CAREFULLY ON THE BASIS OF HIS EXPECTED LONG-TIME FARM OPERATIONS.

For an example of the importance of investment costs, an investment of \$20,000 in permanent buildings means an annual maintenance expense of \$1,000 to \$2,000. Thus for each \$1,000 saved on building construction, approximately \$100 will be saved each year on building maintenance expense. Savings made at the expense of

adequate construction are not advisable. The importance of careful calculation of building requirements before construction is begun cannot be overemphasized.

Size of the farm

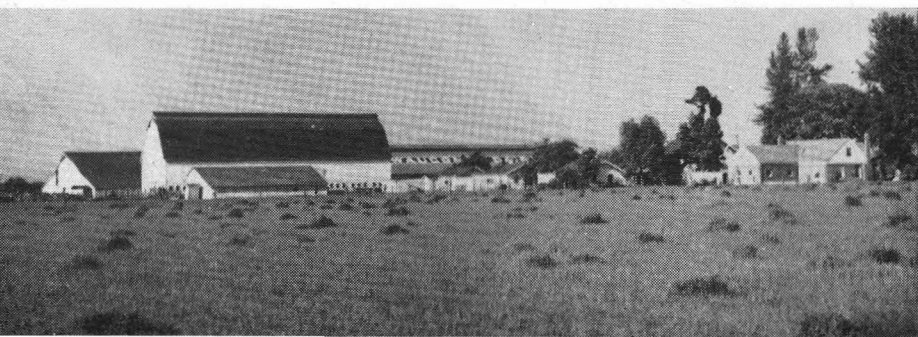
The size of the farm is a big factor in building investment. A \$10,000 building investment on 160 acres is an investment of \$62.50 per acre; the same investment on an 80-acre farm would amount to \$125 per acre. Such an investment on an 80-acre farm would result in a \$6 to \$12 per acre yearly maintenance expense on buildings. Excessive building costs are often incurred on small farms. Farmers should not make the mistake of expecting farm income from small farms to pay for heavy building costs. Building costs excessive for the size of the farm are seldom recovered in the sale of the property.

Making the final decision

Whenever a farmer reaches that stage of financial security where he has no debts, has provided an education for his children, and feels his future well secured, then, if ever, he is in a position to construct buildings without regard to cost or return. Until he reaches that stage in life he should answer these questions before he invests his capital in farm buildings:

1. Is this particular building necessary for my present farm operations? Would temporary construction fit my needs until farm income can be used for permanent buildings?
2. Would capital funds spent for livestock or equipment bring me greater returns.
3. Is this the best time to build? Would the supply, quality, or price of building materials be more favorable in a year or so?
4. Does this building fit the long-time needs of my farm operations?
5. Will the cost and size of building be in keeping with the size of my farm?
6. Will the use of this building pay me a return above annual maintenance expenses?
7. Will construction of this building result in the use of funds needed for the family, such as education for the children?

Figure 5. An example of excessive investment in buildings. Located on a 165-acre farm, these structures can house 120 cows and additional young stock. There is also room to store quantities of loose hay and other feeds. But annual maintenance expenses amount to \$2,500.



Arrangement of the Farmstead

In the arrangement of the farmstead the location of the house comes first. The home is the center of attraction and the focal point of family activity. It should be located so that drainage will be away from the house in one or more directions. The high point of a knoll is an excellent location.

The home should be set back 60 to 75 feet from the road. Closer than 60 feet is undesirable because of dust, noise, and traffic danger to children. Experience has shown that a house placed more than 75 feet from the road results in a lawn too large to be well kept. These general rules will vary in individual cases, however, according to personal preference and other location factors.

Value of a pleasant view

A most important factor is to place the living side of the home so the most favorable view is available at all times. The sight of snow-capped mountains from the living room or kitchen window is an important and enjoyable part of daily living. The beauties of nature always tend to make hearts and tasks much lighter.

Face the house in any direction

It is a common custom for the house to face the road. In some cases this custom may produce undesirable results as when the benefit of the winter sun is not obtained. The house is then harder to heat, and sometimes a pleasing landscape is lost to view. Where space is available there is little reason why a home should not be placed at any angle that will be the most sunny and cheerful in winter and offer the most pleasant view at all times. It has been found, however, that many farm people prefer to have a south exposure for the living room, and a north and east exposure for the kitchen. There should be some sunlight in every room of the house at some time each day.

Figure 6. A poorly arranged farmstead. First thing to meet the visitor's eye is the old barn and manure pile. Drainage of the farmstead is very poor. The house is fairly attractive, but should have been located so as to screen the barn from view.

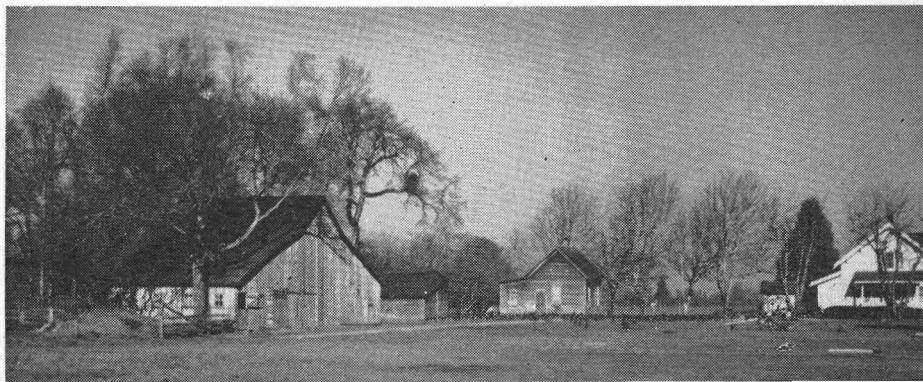




Figure 7. Two beautiful trees frame the approach to this attractive farm home. The house is set on the highest point of a knoll with drainage toward the outbuildings in the rear. Homesite is nicely landscaped with lawns and a moderate amount of shrubbery. Farmstead is well arranged without excessive building investment.

Electric Transformer Location³

The transformer should, for economic reasons, be located at or near the farm electric power load center to keep down wire sizes and costs and it must be sufficiently close to motors to give good voltage regulation. The pole on which the transformer is hung must be so located as to be protected from heavy farm machinery and rubbing by animals. It must be placed where it will not interfere with farmyard operations. Due consideration should be given to the location of the transformer and the water pump from the standpoint of fire protection. The pump should be on a separate circuit, and the transformer pole and pump house should be placed where they are least likely to be affected by a farmstead fire.

Important factors in transformer location are:

1. Farmstead layout.
2. Voltage regulation requirements.
3. Location of the large power consuming equipment.
4. Transformer pole protection.
5. Protection against possible fire damage.
6. Noninterference with regular or seasonal work in the farmyard.

³By M. G. Huber, extension agricultural engineer, Oregon State College.

Location of Sewage Disposal

Oregon State College Extension Bulletin 670⁴ sets out in detail regulations of the State Board of Health concerning location and methods of sewage disposal.

In general, the septic tank must be located at a lower elevation than the house, and 100 to 150 feet downhill from any water supply. It should be protected from livestock.

Location of Outbuildings

Farm buildings should, wherever possible, be located behind the house. When driving along the road or into the driveway, the home, set on an attractive lawn and framed by trees, shrubs, and flowers, should be the first object to meet the traveler's eye.

Type of farming influences building arrangement

The type of farming and farming practices are important considerations in location of buildings, corrals, gates, and lanes. This is especially true on livestock and dairy farms.

- ▶ Design of the building to be constructed and its location should both be influenced principally by desirable farm practices and efficiency of labor. For example, clean ground each year is essential in raising of young chickens and pigs. Legume pasture is also desirable for young, growing animals. Portable hog houses, brooder houses, and range shelters fit into this practice.
- ▶ On dairy farms the barn and corral should be so located that it is possible to rotate pastures without excessive chore labor being involved.
- ▶ Livestock buildings should be located so that it is not necessary to go through feed lots or corrals to reach them.
- ▶ Farm scales should be adjacent to corrals or feed lots in order to weigh livestock and feed with the least effort.
- ▶ Bull pens should be located where the bull can have pasture and exercise. The breeding chute should be adjacent to the barn or corral.
- ▶ It is desirable, but not essential, to have livestock buildings placed on a north-south axis and thus provide maximum sunlight and ventilation.
- ▶ The livestock buildings and corrals should be placed on the side of the house that will prevent prevailing winds from carrying objectionable odors into the home.

⁴Septic Tanks for Oregon Rural Homes, by M. G. Huber.

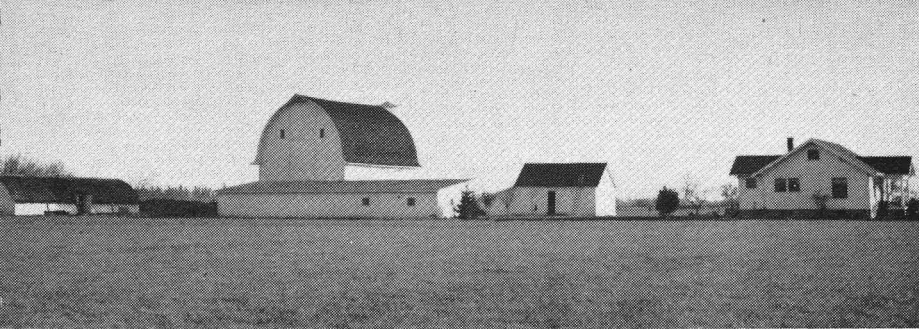


Figure 8. A farm court arrangement of a farmstead uses a relatively small amount of land for building lots.



Figure 9. Same farmstead as shown in Figure 8, as seen from road. Farm court arrangement permits maximum of labor efficiency in doing daily chores.

Good building arrangement saves the farmer's time

Studies of a group of farms in Minnesota⁵ show that livestock farmers spend approximately 75 per cent of their time around the farm buildings. If the farmer travels five extra steps each day while doing his chores, he travels one extra mile in a year. Interior arrangement of buildings, particularly in dairy barns, is even more important in keeping travel and chore time to a minimum.

To show the value of farmstead planning, a comparison has been made of the labor efficiency of the farmsteads in Figures 10 and 11. The absolute minimum chore travel between buildings was calculated for each farmstead. Actually chore travel would be considerable more on the Figure 10 farmstead, and it would continue to show an increasing disadvantage by comparison because of the greater distance between buildings.

⁵*Farmstead Planning*, by S. B. Cleland, Minnesota Extension Folder 135.

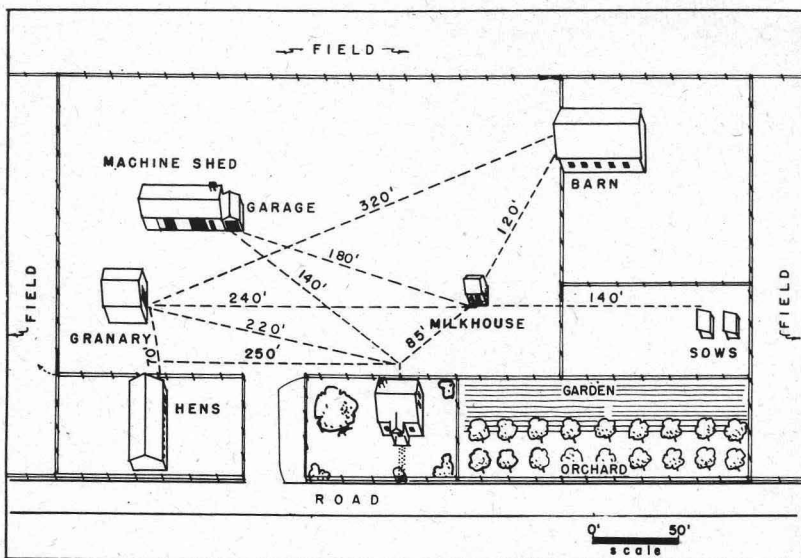


Figure 10. A farmstead that "just grew."

Yearly chore travel for the farmstead in Figure 10 is estimated at 333 miles.

Yearly chore travel for the planned farmstead in Figure 11 is estimated at 171 miles—a saving of 162 miles per year by planning.

Comparative time saved would amount to approximately 80 hours per year—enough for the farmer's family to enjoy an 8-day vacation.

Pertinent facts to be pointed out about the inefficient farmstead arrangement in Figure 10:

The buildings are farther apart than desirable for efficiency and farther apart than necessary for fire protection. Generally, the barn should be approximately 150 feet from the house, and the other buildings 50 feet or more apart for adequate fire protection. Preferably buildings are arranged so prevailing winds cannot spread fire.

The granary should be nearer the barn and hog houses where most of the feed is used.

The poultry house has no feed storage.

The garage is too far from the house.

The milkhouse should be located close to the barn for greater efficiency.

A farmstead arrangement that is deeper than it is wide is usually the most efficient.

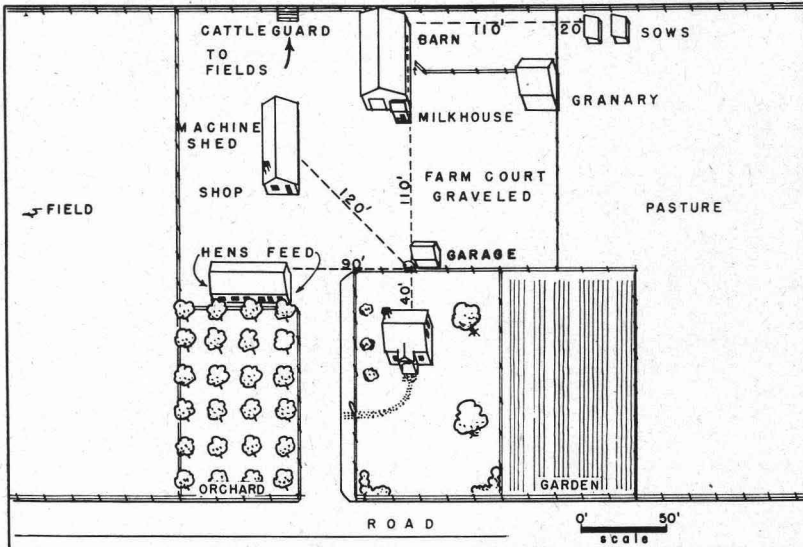


Figure 11. Same farmstead as shown in Figure 10, after rearrangement.

The following points apply to the efficient farmstead arrangement shown in Figure 11:

The farm court arrangement allows circular chore travel from building to building.

Every building is visible from the rear entrance of the house.

The back yard entrance is on a direct line with the entrance to the milkhouse. This cuts down chore travel and coincides with the practice of putting the milking equipment together as the first step in milking the cows.

The granary is the drive-through-the-center type. It is adjacent to the barn and hog houses where grain will be used.

The garage is just outside the back yard gate, convenient, yet far enough from the house to keep dust raised by automobiles from settling in the home.

The machine shed is out from the fence so that doors may be opened on both sides of the building. Machinery may be pulled through the shed rather than backed out.

The milkhouse is adjacent to the barn. This placement eliminates two extra trips per day.

A cattle guard is used for the entrance to the lane; this saves the time and trouble of opening a gate.

The poultry house location allows range for the hens. This poultry house has a feed storage room.

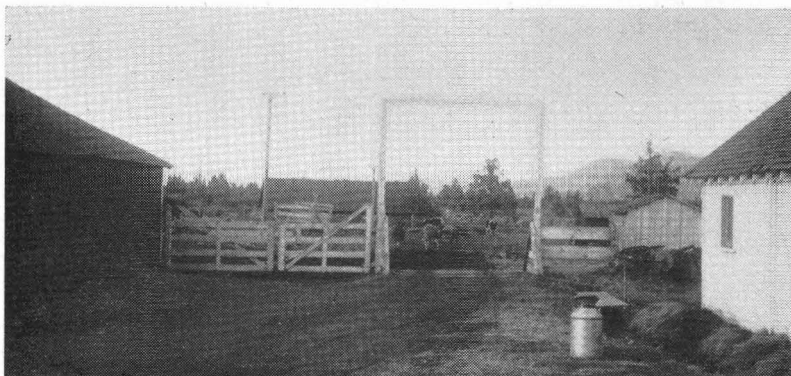


Figure 12. A gate and cattle guard combination on a Deschutes County farm. A series of such combinations in a central farm lane permits livestock to travel to pasture as far down the lane as the gates are opened. Machinery can travel from one end of the farm to the other without opening a single gate.

Field Layout

GOOD IRRIGATION PRACTICE is the first consideration in field layout. Because of this factor it may be difficult to secure an ideal field layout on some farms.

Certain general factors should be kept in mind and may be used within the FLEXIBILITY OF GOOD IRRIGATION PRACTICE. These are:

- ▶ Fields 5 acres in size require 10 per cent⁶ more machine labor than fields 15 acres or more in size.* This means that under average conditions a 5-acre field of potatoes would require 2 hours more machine labor per acre than a field 15 acres or more in size. Assuming 1946 wage rates of \$3 per hour for a machine and its operator, the 5-acre field would require \$6 per acre more machine labor than the 15-acre field.
- ▶ A rectangular field requires 20 per cent⁷ less machine labor than a triangular field. Assuming 1946 wage rates of \$3 per hour for a machine and its operator, machine labor costs would average \$12 per acre more for a triangular field of potatoes than for a rectangular field.
- ▶ Irregular fields should be used for hay or pasture.
- ▶ Rocks, trees, or other field obstructions should be removed for efficient farming with machinery.

⁶, ⁷Economic Study of Farm Layout, by W. I. Myers, Cornell Univ. Agr. Exp. Sta. Memoir 34.

* Data adjusted to current machine operations.

- Fencing cost per acre DECREASES as the size of the field INCREASES. Use electric and easily movable temporary fence for rotation pastures and temporary needs. On many farms the only permanent fences necessary are the outside boundary fence and the fence for corrals and a central lane.

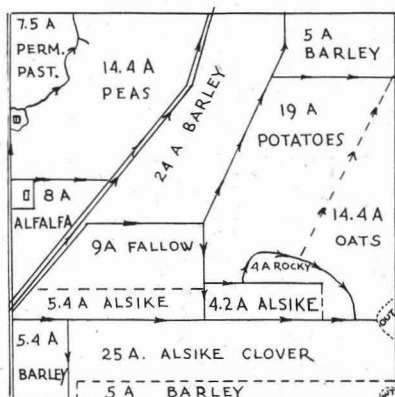


Figure 13. Farm A.

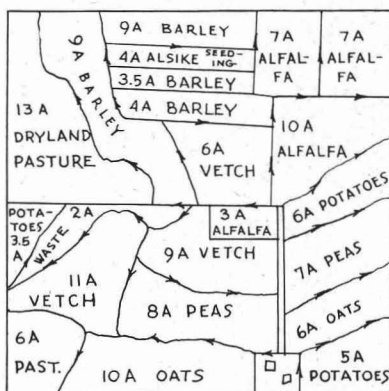


Figure 14. Farm B.

The following should be noted about FARM A (Figure 13) :

Although this is not an ideal layout and some of the small fields are unnecessary, the majority of the crop acreage is in large fields enabling efficient operation of machinery.

Small irregular fields are in alfalfa and pasture eliminating much machine operation.

When compared with Farm B (Figure 14), better farm layout and farm management practices resulted in an estimated saving of 56 hours machine labor* in growing and harvesting the 1946 crops, or a 15 per cent crop acre saving.

The following may be noted about FARM B :

The fields are too small for efficient operation of machinery.

Leveling the land for irrigation would permit a new field layout with fields as large as good irrigation practice will permit.

In addition to the man labor it is safe to assume would be necessary, the 56 hours more machine labor* required for this farm, if valued at \$3 per hour, would amount to \$168 annually. Capitalized at 5 per cent interest, the owner of this farm could afford to spend \$3,360 to level his land and lay out a new irrigation system and field arrangement.

* Refers only to machine operations necessary to grow and harvest a crop plus a man to operate the machinery—calculated from adjusted data in *Economic Study of Farm Layout* by W. I. Myers, Cornell Univ. Exp. Sta. Memoir 34.

Garden, Orchard, and Windbreak

One-half acre of garden can usually produce enough vegetables for a family of average size. The garden should be located adjacent to the lawn so the housewife can step out the back door and gather vegetables for the family table. Fertile, well drained soil is desirable for a good garden.

The orchard

There is always some question whether the time and expense involved in the care of a family orchard is justifiable when alternative uses of the land and time are considered.

It is often cheaper to purchase the family fruit supply than raise it. The health of the farm family, however, is the first consideration, and if the fruit supply is grown rather than purchased it is more likely to be sufficient for the family needs. Some families compromise by planting fruit trees in the back yard, and a few rows of berries in the garden, and then purchasing enough fruit to supplement the amount grown. At any rate the orchard should either be small enough so hand equipment will take care of disease and insect control, or be large enough to justify the cost and use of power equipment.

It is desirable to have the orchard located as close to the house as efficient farm layout will permit. Since the orchard harvest comes at a few definite times and the cultivation may be done by machinery, it is not as important to have the orchard near the house as it is to have the garden close by.

Windbreaks

Most irrigated sections have no natural protection from the winter winds that sweep across the valleys and plateaus. A good thick windbreak properly set will do much to save feed and fuel.

Windbreaks should be set approximately 50 feet from the outside boundary of the farmstead across the path of the prevailing winter wind. Two rows of native evergreens set in an alternate pattern so the trees in one row stop the wind going between the trees in the other row give the best protection. To provide an early windbreak, a row of fast growing trees also may be planted. These are cut out after the evergreens mature.

Native evergreens recommended^{*} are: junipers, blue spruce, dwarf pine, and American and Siberian arborvitae.

^{*}Recommended by R. Ralph Clark, O.S.C. extension horticulturist.

Beautification of Home Grounds

Every farmstead plan should provide for landscaping and beautification of the home grounds. Time and labor, rather than the money expended, are the big factors in home beautification. If the farmstead is efficiently arranged, enough leisure will result to allow ample time for making the home attractive. The joy and pride in having a beautiful farm home, and the pleasant home life resulting from it, are both above monetary value. Some of the general principles in planning the home grounds are:

Establish a good lawn.

Do not plant trees or shrubs where they will obstruct the front view of the home or block off a pleasing landscape.

Screen unsightly objects with tall shrubs.

Use low shrubs to screen from view the foundation of the house. Taller shrubs may be used at corners or between windows.

Plan a back yard picnic area to include an outdoor fireplace and lawn furniture.

Flowers should be used as borders around walks and fences and at the edge of the shrubbery around the foundation of the house. A flower garden in the back yard is desirable.

Plantings of native shrubs are usually a good idea, because they are hardy and adapted to the climate.

In addition to native shrubs, other recommended shrubs⁹ are: spireas, lilacs, hardy hydrangeas, honeysuckle, mock orange, Japanese barberry, and the hardy roses.

Trees recommended¹⁰ for beauty and shade are the native evergreen, junipers, blue spruce, dwarf pine, American and Siberian arborvitae, and the deciduous trees such as locust, birch, red oak, black walnut, maple, hackberry, white ash, and the hardy fruit trees. It is sometimes possible to obtain a supply of trees from the State Forester for use as wind-breaks on the farm.

Put the Plan on Paper

Many a farmer has been heard to say, "If I were building that barn again I'd move it about 50 feet to the right," or, "That machine shed is just in the wrong place, but it's too late now."

These are unfortunate examples of not having put the farm and farmstead plan on paper. Using an eraser to change the location of a building on a plan is an easy task, but mistakes discovered after the building is already constructed are mistakes the farmer must live with for the life of the building.

^{9, 10}Recommended by R. Ralph Clark, O.S.C. extension horticulturist.

Planning is a family affair

Since the welfare of all members of the farm family is concerned, **PLANNING SHOULD BE A FAMILY AFFAIR**. Particularly is this true in planning the home. Regardless of whether all buildings are to be constructed immediately or some time in the future when funds become available, the complete plan should be put on paper. Only in this way it is possible to see the relationship of one building to another in the farmstead arrangement. The plan may be altered as time and changes in conditions demand.

Make two complete plans

Two complete plans should be made, one of the whole farm showing field layout and location of the farmstead, and one a detailed plan of the farmstead showing building locations, corrals, walks, feed racks, water supply, and plan of the home grounds. A scale of 100 feet to the inch is usually desirable for the plan of the whole farm. So that all the details may be shown, a scale of approximately 20 feet to the inch is desirable for the plan of the farmstead.

After the plan has been made, studied, and agreed upon by the family it should be drawn in ink on good quality paper as a permanent record.

Put building plans on paper

The plan and design of all buildings should also be put on paper before construction. Usually it is desirable to obtain technical assistance in the actual planning of farm buildings. Obtaining working drawings or blueprints of buildings before construction will avoid many costly errors. Developing the plan and study of the blueprint will stimulate and focus thinking on the details of arrangement. It is through such a process that many money saving ideas are developed. Every local county agent has detailed plans for nearly every type of farm building. These plans have been developed by the Agricultural Engineering Department at Oregon State College, which also maintains a blueprinting service operated on a cost basis for farmers and other persons desiring blueprints of building plans. These blueprints may be ordered through your local county agent.

Value of planning a new farm

Putting plans on paper is of immediate value to the farmer who is laying out a complete new farm, for he has the opportunity to avoid many of the mistakes usually made where farm improvements "just grew" as need arose.



Figure 15. Feed grinding. With an overhead bin arrangement and a 3 or 5 horsepower electric motor on a hammer mill, one man can grind and elevate enough grain in 1 1/2 hours to supply a 30-cow dairy herd for one week. Maximum use of electrical equipment cuts down high labor costs. (Photograph by courtesy Westinghouse Electric Corporation.)

Farm planning for the established farmer

EVEN THE ESTABLISHED FARMER WILL RECEIVE A GREAT DEAL OF VALUE FROM PREPARING PLANS FOR REARRANGEMENT OF HIS FARM AND FARMSTEAD AS A LONG-RANGE PROJECT. As new buildings and fences are constructed, changes can be gradually made that will increase the efficiency of his farm plant. In many cases it is possible to rearrange the interior of a building with a resulting increase in labor efficiency that soon will pay for the cost.

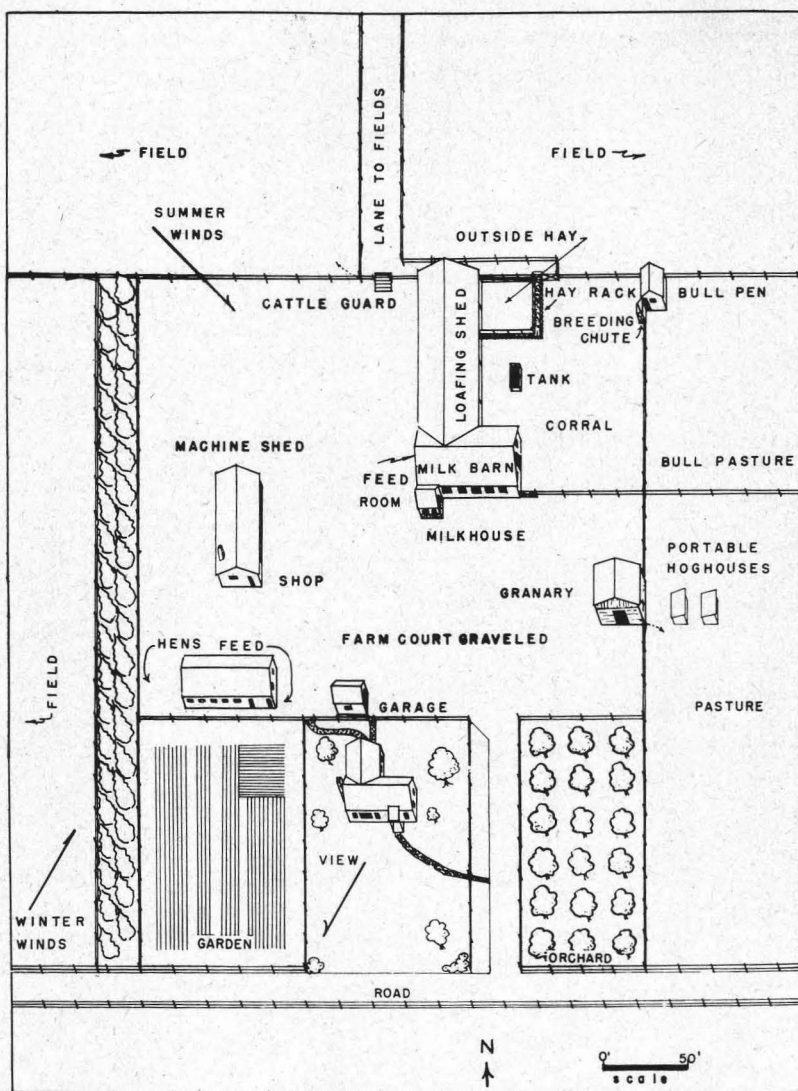


Figure 16. Farmstead facing south. Dairying as main enterprise.

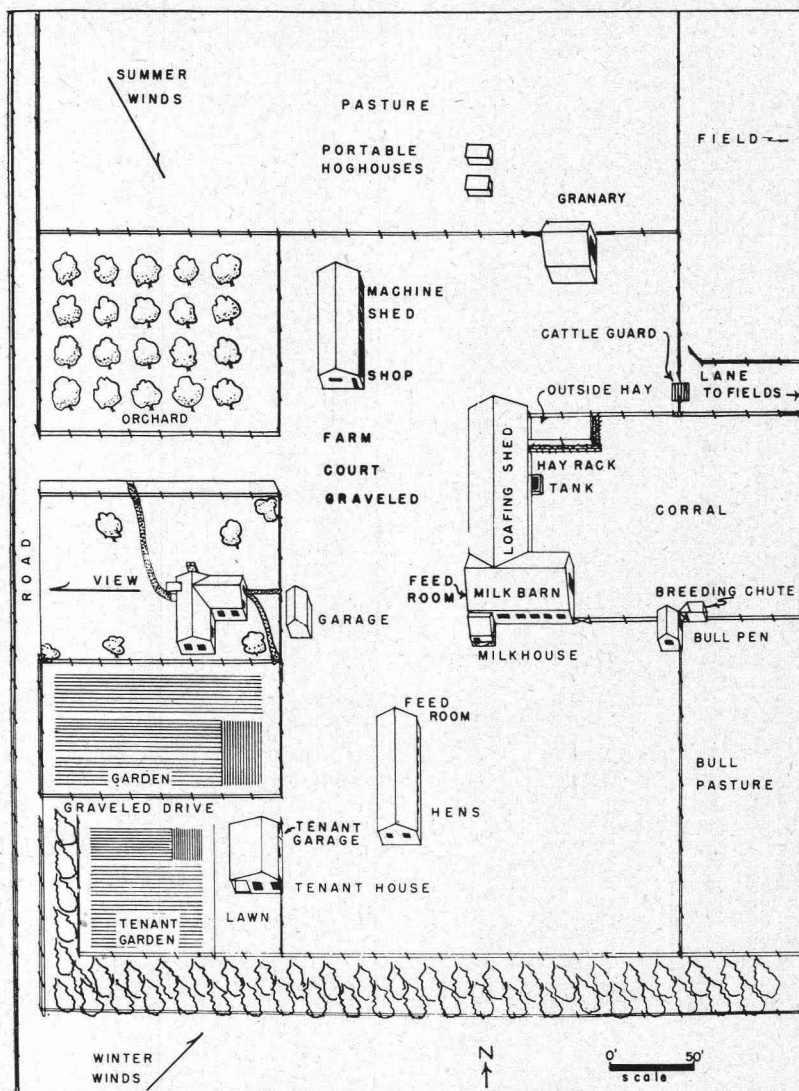


Figure 17. Farmstead facing west. Dairying as main enterprise.

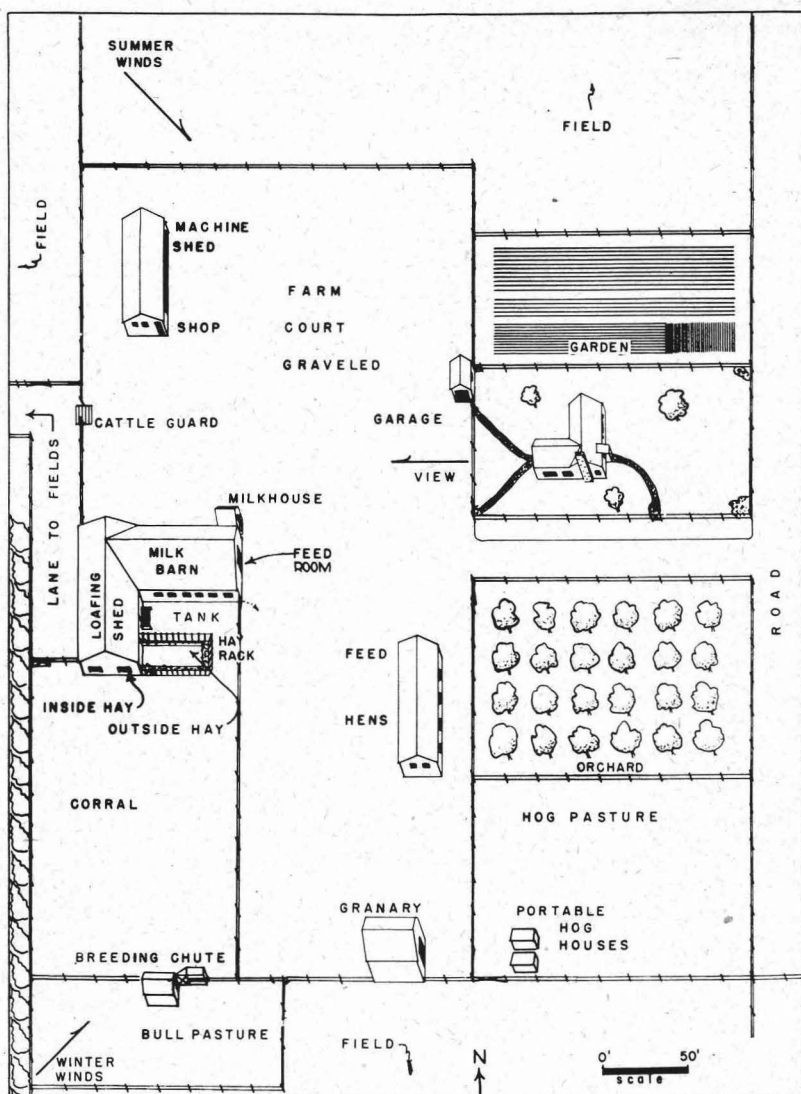


Figure 18. Farmstead facing east. Dairying as main enterprise.

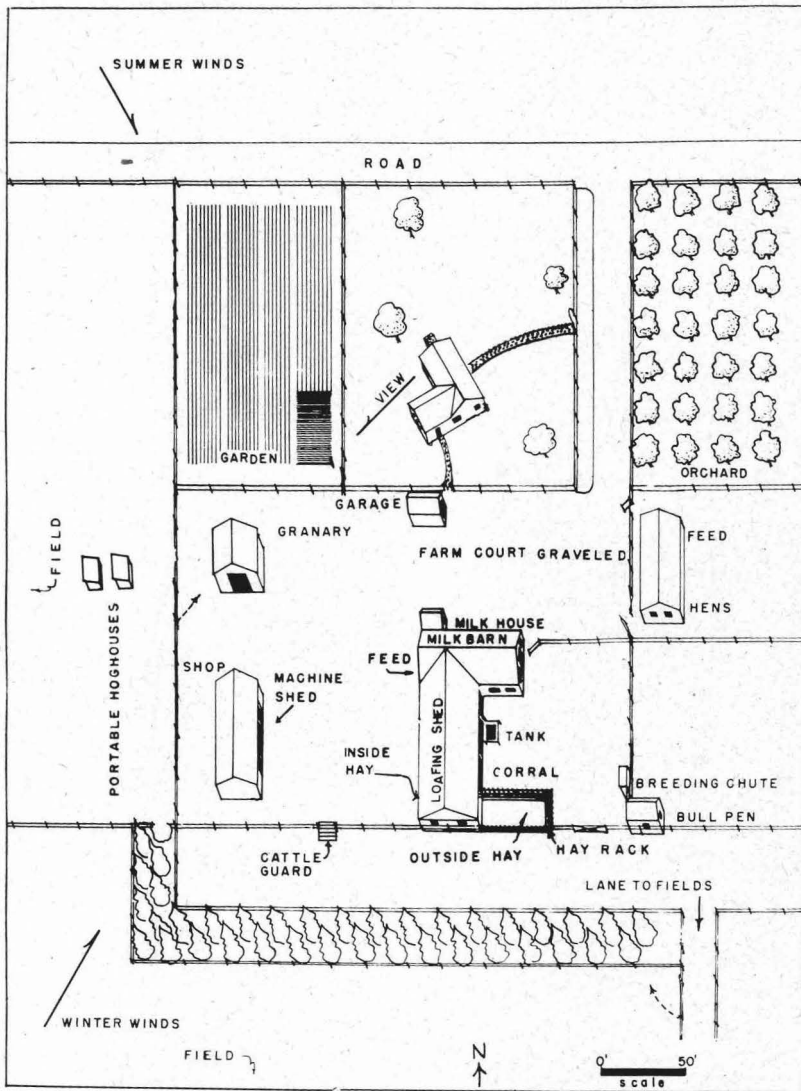


Figure 19. Farmstead facing north. Dairying as main enterprise.

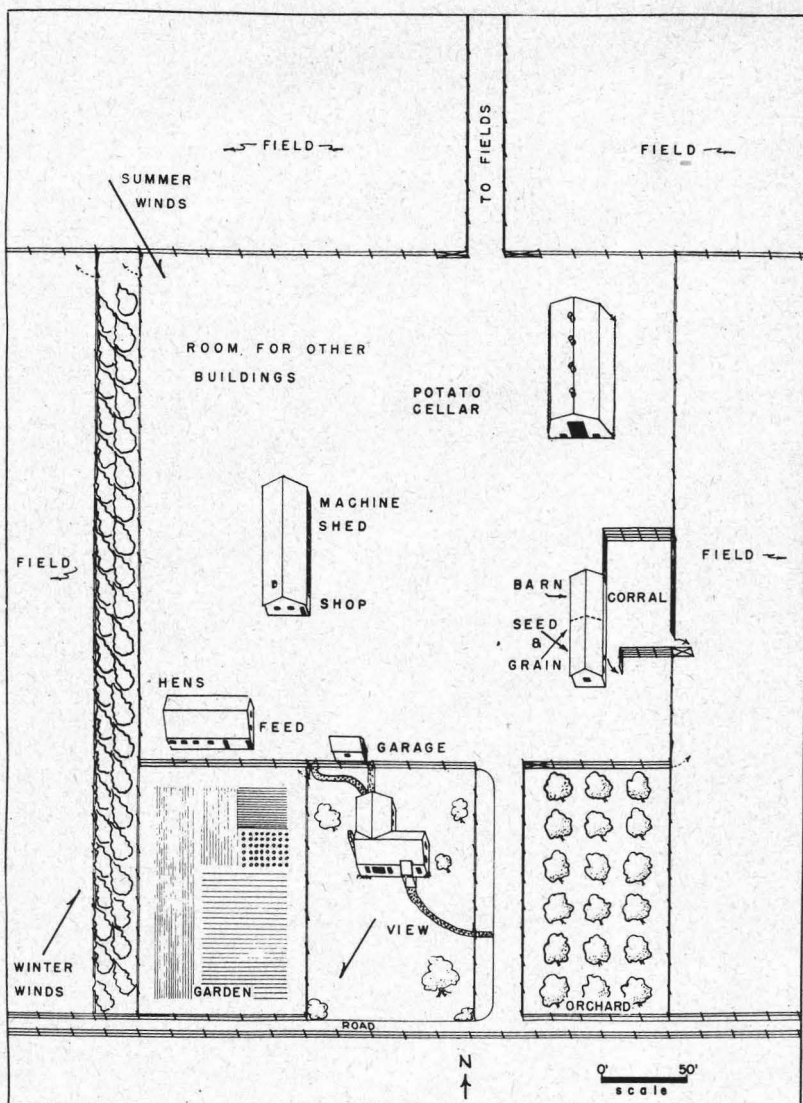


Figure 20. Farmstead facing south. Crops as main enterprise.

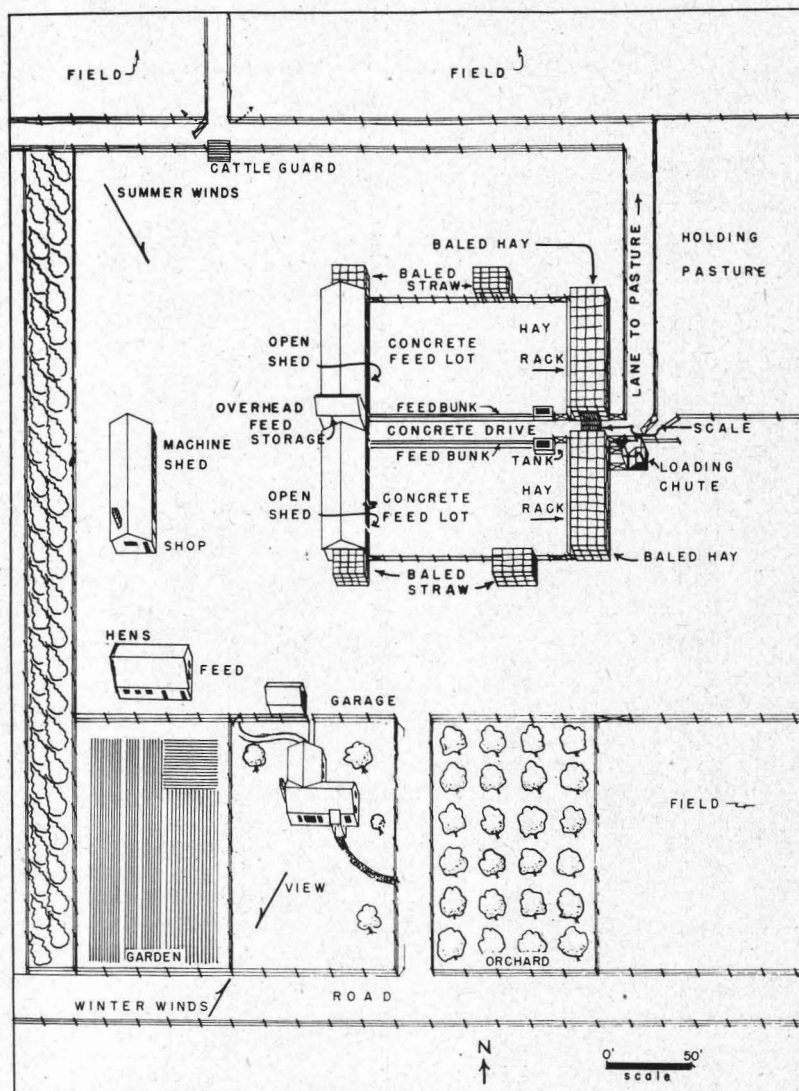


Figure 21. Farmstead facing south. Cattle feeding as main enterprise.

The Farmstead Scorecard

After the plan of the farm and farmstead has been made and thoroughly studied, and before the plan is put in final form, a thorough recheck of all its features should be made.

How does your farm and farmstead score against these qualifications?

1. Are your fields laid out for maximum irrigation efficiency?
2. Are your fields laid out for most efficient use of machinery and labor?
3. Is your farmstead located on a good road, where travel to fields will be at a minimum, and where all fields are easily accessible for rotation of pastures?
4. Is your farmstead adequately drained and reasonably close to its water supply?
5. Are your buildings arranged for a minimum of chore travel, both inside and between buildings.
6. Are your buildings designed to include as much labor saving equipment as possible, such as overhead feed bins, and a maximum of electrically operated machinery?
7. Are your buildings designed to conform to the latest developments in approved farm practices?
8. Are your main buildings far enough apart (150 feet barn to house, 50 feet between outbuildings) for adequate fire prevention? Do your over-all plans include adequate insurance?
9. Does your home plan provide comfort and pleasure for all your family and a view of the most pleasing landscape?
10. Does your plan include beautification of the home grounds and a back yard picnic area.
11. Are the garden, garage, and poultry house convenient to the house?
12. Do you plan a windbreak of hardy native evergreens, set 50 to 100 feet from the main buildings across the path of the winter winds?

Because of the wide range in conditions found on every farm, a farmer will be indeed fortunate if he can answer "yes" to all of these 12 qualifications of a good farm and farmstead layout. But a good plan for an attractive, efficient farm is something all members of the family will be willing to work and strive for. Such an achievement, however long in coming, will bring satisfaction and joy of living to the family for years to come.

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Wm. A. Schoenfeld, Director

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