

Willamette Valley Farm Woodlots

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Introduction

Willamette Valley farm woodlands in spite of their comparatively large area and the significant contribution that they could make to farm economy have been badly neglected mainly because farmers have failed to recognize timber as an important one of the diversified farm crops.

In pioneering Western Oregon the settlers of necessity looked upon trees as something to burn or otherwise destroy in order to eliminate savage ambushes and to get the timberland to producing wheat. Starting with pioneers whose attitude was negative to the values of forest crops, agriculture has become highly developed in the United States. During this period of development of agriculture three assumptions have dominated. First that all land may be tilled if enough skill and labor is applied, second tillage is the criterion of good farming, untilled land is a disgrace, and pasturage is a low use mainly primitive and third the ideal text-book farm is a level piece of land with square fields capable of tillage. Therefore farming at the present time in Western Oregon is in the state of an industry before the time of the utilization of by products since woodlots occupy untilled land and are not worthy of a true farmer's attention. Because the Willamette Valley is in the great Douglas fir timber region which is eighty-two percent timber land as well as the last region of uncut virgin timber, woodlots have been slow to develop. Such farm forestry practice will never be as extensive in Western Oregon as in the Eastern United States because of the vast surrounding timber lands.

Another cause of slowly developed woodlots is that farmers as a

group are so conservative that they ordinarily will not change their ways and ideas except under pressure of being shown and as eighty-five percent of the county agents of this country have had no farm forestry included in their professional curriculum, the farmer remains unenlightened. In many cases farmers have received as much per acre from their woodlands as they have from the other farm acres but through no satisfactory book-keeping and their soil-tilling-mindedness they overlook or will not admit the value of their arboreal crop.

Another reason why the patrons of the soil have overlooked the tree harvest is that they are used to clear cutting or the taking of all the wheat crop every year and they cannot see that by taking from one to two thousand board feet of logs off of one acre each year in the form of one or two trees that there is more bulk and perhaps an equal profit as compared to twenty bushels of wheat from an acre in a nearby field. The attitudes and traditional farmer characteristics are the causes of the present unmanaged and unproductive woodlots of the Willamette Valley. At present these woodlands are just known as the "pasture" where the cows and sheep run the year around whether there is any feed present or not and where the farmer cuts his poles, posts and winter's supply of wood from a poorly stocked stand of trees whose vitality and vigor are suffocated by the hoof-packed and overgrazed earth.

Advantages of Farm Forestry

The advantages of a managed farm forest are not theoretical as they have been proved in many instances in European forestry as well as in the Eastern half of the United States. Even here in the

Willamette Valley where the virgin crop of trees is not entirely depleted, each farmer uses annually ten or twelve cords of wood, twenty to thirty fence posts, a thousand or so board feet of lumber and a few poles all of which would cost him in the neighborhood of one-hundred dollars at the market price. If these products do not come from the farmers private woodlot, then he realizes their value but too often in harvesting this material from his own land he overlooks the present value and the possibility of a sustained annual harvest of an equal value. The farmer in harvesting the necessary wood products from his own land not only saves the harvesting but the transportation charges and the time required to go after the desired products. Building material and fuel are prime necessities on the farm and a farmer must produce as many of his needs as possible in order to have a normal standard of living during these times.

Successful farming is usually diversified farming or not having all of the eggs in the same basket and successful diversified farming often depends upon growing the right crop on different kinds of land. Growing timber fits perfectly into the diversified practice of farming because odd corners, rough or rocky ground can be made to produce the utmost when used to produce timber products. In these days when there is such an oversupply of farm products, if every farmer would turn ten percent of his land into a managed woodlot he would have a sure annual income from woodlot products and also would relieve the over production pressure to a considerable extent. After the trees were growing well on the ten percent of his farm if a prosperous period would appear the farmer could concentrate the same amount of time, money and energy on the remaining ninety percent of his area and the intensity of farming

would produce as great a volume of field produce as was produced before the ten percent was managed as a woodlot. It has been said that the state of Illinois could feed the present population of the United States if it was farmed as intensively as present knowledge would permit. So it seems to me that the culturing of field crops, fruit yards and orchards should be confined to that land which will show the largest profit. The present Agricultural Adjustment Administration recognizes the importance of farm forestry by offering to subsidize properly managed woodlots to the extent of three dollars-fifty cents per acre. Federal legislation of the past has recognized farm forestry as important as far back as 1873 when the Timber Culture Act was passed. This act gave any person a title to one-hundred-sixty acres provided that person planted forty acres of the area to trees. Since this first legislation encouraging tree planting the Clarke McNary Act has been passed and made affective in making tree seedlings easily available for planting in farm forests and windbreaks. Still a later legislative act which encourages farm tree culture is the Norris-Doxey Farm Forestry Act of 1937 which authorized \$2,500,000 to enable the Forest Service through the Secretary of Agriculture to contribute as much as fifty percent of the cost of forestation in a broad cooperative program of farm forestry. Congress has yet failed to appropriate funds for the latter act. That the importance of farm forestry is realized by the leaders of the day was evidenced by the last session of congress when a bill was introduced providing for federal aid of county foresters on the same basis as federal aid of county agricultural agents.

In connection with the suggestion that ten percent of the present farmland could be profitably turned to forest production, the question might arise as to the kind of outlet available for the large volume of wood products which would be produced on so many woodlots. Aside from the fact that farm communities are very good markets for cheap lumber, posts, poles, and wood fuel, chemists say that in the near future more raw products will be produced from wood cellulose and lignin than from ordinary farm products. This is being evidenced by the production of rayon, acetate fabrics, wood plastics which replace metal, and the suggestion that Pacific Coast iron can be coked with wood charcoal. Wood is the only raw material in quantity which can be processed in such a way as a substitute for gasoline, coal, and various metals. These three essential products are being depleted and cannot be replaced like a crop of trees. This is especially true of gasoline which engineers say will be much higher in price within the next thirty years due to the depletion of the free oil, that which doesn't have to be processed out of rock. Wood alcohol may yet replace gasoline as fuel for the internal combustion engine during the twentieth century.

The raising of timber requires little labor which is the largest item in the raising of other farm crops. Agricultural engineers state that the machinery for ordinary diversified farming costs one dollar per acre per year. The tools required to harvest a timber crop are often just an ax and a saw but in case logs are to be harvested the time of year for the logging operation can be selected when farm teams and tractors are idle thus making them pay a larger return on their value. A profitable job at this slack season of a farmer's year will

more efficiently utilize his time and thus raise his standard of living.

The yield of farm crops vary from year to year and the more abundant the ordinary crop, the lower is the price but not so with the forest crop because its harvest can not only be postponed without damage but instead the crop ever increases in value until a normal market is available. The harvesting of this crop may take place at any time of the year and if sickness or other pressure delays harvest, the crop isn't hurt but keeps right on growing in fact the woodlot is a savings bank accruing compound interest and in case of adversity its owner can draw on the capital to tide him over. In the southeastern United States when the boll weevil struck, cotton farmers would have been bankrupt had it not been for their woodlands. During this particular time of stress the enormous cut from the woodlands for a while saved not only farms but business, railroads and towns. Among the other advantages of a well managed forest is that they naturally sow the following crop, furnish their own fertilizer and take care of their own erosion problems.

A farmer's cooperative farm forestry project is in an excellent position to compete with the large specialized timber producer because: a higher yield per acre can be obtained on the farm due to cheap labor for intensive cultural operations, small areas are easier to protect from fire, disease and insect infestations, and the farmer is right at his markets thus doing away with the high cost of transporting a bulky product.

Besides the real value of trees on the farm, there is an aesthetic and moral value. Farms have been known to sell more quickly or at a

higher price if it had a stand of trees upon its premises. This is true because friendly trees shelter wildlife and human habitation alike by tempering both the extremes of summer and winter. Birds that propagate within a stand of trees are a large factor in the control of destructive insects. Then to there is moral satisfaction in planting and nurturing a tree even if there is no monetary return until another generation. This is brought out by an old Oriental proverb which said, "He who has not written a book, had a child or planted a tree, has not lived".

In the Eastern part of the United States farm forestry has increased more than sixty-five percent since 1921. This increase is due to the back to the farm movement caused by industrial recession. In many cases the farms settled in this movement were cheap farms only adaptable to tree culture. Another reason for this increased forest planting was that the soil of the older farms became so depleted that trees were the only crop that would grow and too farmers began to realize the profit available from building material, fuel, turpentine, and maple sugar. In New Hampshire land that would only produce one ton of hay to the acre produced two cords of pine wood or one cord of hardwood each year. These two cords of pine wood brought fifteen dollars, a sum that could not be equaled with any other on this type of land. Woodlot products rank third in value of farm produce in the state of New Hampshire, hay and dairy products only exceeding the wood products from the farm. In many instances in this Eastern state woodlands return a greater per acre income than the rest of the farm and many dairymen could not in times of adversity make ends meet if the pine trees didn't stay right on the job of producing two cords per

acre per year.

The Southern pine region is developing farmer's cooperatives in raising and marketing their woodland products. Under proper management these woodlands produce from four-hundred to six-hundred board feet annually at an income of two dollars per acre. These same forests under the old clear cutting practice would only return seven dollars per acre at one harvest every thirty years. This is explained by the fact that three trees growing close together each producing ten board feet per year and by harvesting one and each of the remaining two by reason of less competition will produce fifteen board feet or as much as all three of them produced together. In this manner you can harvest your forest and have a forest too.

These advantages while not all congruous to Willamette valley conditions give a very good idea as to the possibilities of farm forestry in this region. The neighboring natural forest lands are not so competitive when the rapid growth rate of this humid temperate climate and the great effects of intensive tree culture are considered.

Some Definite Returns from Farm Forestry

Black locust is durable as a fence post for twenty-five to thirty years thus making it on a par with or better because of strength than cedar which sells at the present time for fifteen cents a post. This species will produce trees of post size in the Willamette valley in ten years and will produce fifteen hundred posts per acre on the first rotation and thereafter the production will be increased due to the faster reproduction by sprouting. Just roughly figuring the income from the first rotation on an annual income basis, fifteen hundred

posts in ten years will be one-hundred-fifty posts per year at fifteen cents each or an annual income of twenty-two dollars-fifty cents.

The University of Idaho experiment station proved that raising black locust fence posts was highly profitable. Their results from an average of nineteen woodlots showed an annual income of thirty-one dollars eighty-eight cents per acre after deducting five percent compound interest. In the Willamette Valley this species will grow faster and show a larger profit due to excellent growing conditions. There is a large market for fence posts in farming districts at present and it will increase within the next few years due to the diminishing of post cedar and the increase of intensive farming and while the market is not unlimited there would be a substantial source of income for a large number of farmers. They at least should produce enough posts for their own use.

On a fair site and under the intensive management which a farmer would be able to give it, an acre of Douglas-fir would produce fifteen-hundred board feet of saw timber annually. This was proved on the Mc Donald Forest near Corvallis where a fairly poor site under intensive culture produced fourteen-hundred board feet a year. If the practicing farmer had a large enough acreage of timber, he could have his own sawmill or if several farmers could cooperate and have a common sawmill and in this way make wages while they sawed logs into lumber which would otherwise cost them nearly thirty dollars a thousand or if they had no use for the lumber sell it for this price, it would return them some twenty dollars an acre on their land.

A yield of fifteen-hundred board feet of logs annually is equivalent to three cords of wood. At the present price of six

dollars a cord for second growth cordwood a profit of eighteen dollars an acre could be obtained annually from the sale of cordwood. This eighteen dollars a cord would be less labor of course, but a wood cutters wages are not very high and a farmer doesn't value his own time very highly during the winter months.

A certain Tom Miller who lives near Brownsville, Oregon very enthusiastically believes in the profitableness of raising cascara. He has a plantation of eighteen acres with seventeen hundred trees to the acre. Each tree will produce ten pounds of cascara bark at the age of ten years and he says he can get ten cents a pound for the bark by dealing directly with the drug manufacturers. At this price the acres of his farm will each produce one-hundred-seventy dollars not deducting for the expense of cultural operations which he thinks is more than offset by the cascara product derived annually by the thinnings and prunings. There is also an auxiliary income from the sale of seed and from the sale of fence posts from the peeled trees. These are Mr. Miller's figures and there is no reason or way to prove them false but by way of being conservative one might deduct fifty percent from the total for overenthusiasm and still be very sure of a profit.

Description of the Willamette Valley

The Willamette Valley which contains 12,526 square miles is one of the six different agricultural regions of Oregon. It is comprised of the counties of Clackamas, Washington, Yamhill, Polk, Marion, Linn, Benton, and Lane counties and is an area averaging thirty-five to eighty miles wide by one-hundred-sixty miles long bounded on the north

by the Columbia River, on the east by the Cascade Mountains, on the west by the Oregon Coast Range, and on the south by the Calapooya Mountains. The principal river is the Willamette which is formed by the middle fork of the Willamette and the McKensie River and is fed by the Santiam, Molalla, Clackamas, and Calapooya rivers from the east, the Long Tom, Luckiamute, Yamhill, Tualatin and Rickreall rivers from the west. The Willamette River which is in the center of the valley flows into the Columbia River near Portland or about one-hundred miles from where the latter river empties into the Pacific Ocean.

Being in the temperate zone, near the ocean and sheltered from the wind on all sides the climate is temperate, mild, and humid. January, the coldest month of the year has a mean temperature of 39° F and the mean of the hottest month, July, is 67° F. The average temperature throughout the year is 52° F and the average temperature of the one-hundred-fifty to two-hundred day growing season is 56° F. Freezing temperatures are rare and of short durations and midsummer temperatures of 100° F occur only occasionally. There is ordinarily a period of about eight months free of killing frosts. The average rainfall is forty-seven inches and rarely does the snow lie on the ground for an extended period.

With the favorable climate and good soil there are few crops that cannot be produced in the Willamette Valley. The types of farming mainly practiced are: field cropping, diversified crops, livestock raising, dairying, fruit growing, truck gardening, poultry raising, hop, and nut growing. This type of intensified and diversified farming is usually carried on with a small acreage. These small intensively farmed units have a great need for products of the woodlot,

such products are lumber, fence posts, poles, stakes, fuelwood, and rough implements. The climate is as ideal for the growing of these products as it is for the production of the many and varied farm products.

Management

Careful selection cutting is the type of cutting management to be used in a farm forest. This is the cutting of the most mature trees, the diseased or insect infested trees, the deformed trees and the ones that are crowding some faster growing or better situated tree. In this practice the faster growing trees should always be left in the best possible growing situation. The culture of trees is not too complicated for farmers to understand or difficult to practice. There are many United States Department of Agriculture bulletins that make these processes quite clear.

Growing mixed stands of hardwoods and conifers is very desirable in farm forestry in the Willamette Valley because mixed stands are less susceptible to disease and insects and the hardwood products are very valuable because of their scarcity in this region. This suggested mixed stand may not be desirable in very many instances but may be highly desirable in certain situations, at least the growth of hardwoods should be encouraged.

Grazing is in most cases the only thing that is preventing the natural reproduction and normal growth of trees on the present valley farm forests. Farmers are only looking from one year to the next or practicing a sort of "hand to mouth" income in the practice of heavy grazing when with a few years of management the pasture lot would

produce a far greater annual income from woods products than the few cents that the grazing is worth. Grazing has no place on a normal farm forest because there is no feed available on the floor beneath a dense canopy of trees. There possibly is a place for the pasturing of a new tract of growing trees before forest canopy has closed and created a dense shade. Even this pasturing should be carried on discreetly in such ways as to not allow grass to be eaten down to the roots and in only allowing stock on the ground at such times as the soil is dry enough not to pack so hard that its moisture absorbing and aeration capacity is ruined. The management policy which will produce the maximum yield is to thoroughly fence the woodlot, strictly prohibit grazing and pursue specialized forestry.

The reproduction of forest trees will well take care of itself in a properly managed forest but in starting a woodlot or after an extra heavy cutting if the trees do not return quickly enough due to a poor seed year and if the establishment of a seedling stand needs to be hastened seedlings are readily available to the farmer at a very small cost at the Clarke McNary Nursery at Corvallis.

In the marketing of timber products a producer should take every precaution to get the full value for the material sold. Most farmers do not understand log rules or other log measuring devices so he would be inclined to take someone's word for the volume of his wood products. In every case a farmer who is selling logs or piling should consult an expert who he can trust.

In finding a market for a small quantity of logs a farmer is likely to sell at a very low price because he would not have a quantity of products large enough to influence the setting of a price.

A group of farmers selling cooperatively would be a solution for this problem. A cooperative of this sort should seek the advice of a reliable impartial forester in the measuring, marketing, transporting, and grading of the logs. Another solution would be for the farmers to form a cooperative milling company and log mill and retail their own products.

A creosote preservative treatment of posts and poles would be a factor in increasing a demand for forest products as well as furnishing remunerative employment for the farmer. The twenty year increase in the durability of fence posts would not only be an added efficiency to farm construction but would make the thinnings or by products of the forest more attractive to consumers.

In general, farm forest management embodies a conservative economy, practical judgement, a little knowledge of plant growth, and a desire for a stable individual economy.

Conclusion

It is very evident that farm forestry will return a much greater income to the farmers of the Willamette Valley than it has been allowed to return in the past. Now is the time to establish these managed farm forests while there is yet a virgin nucleus of trees around which to build a sustained production unit.

To get the farmer started in the production of woods products will take a lot of persuading and educating by those people and agencies who understand forestry and who wish to help the farmer. The public can afford to make greater appropriations in starting this agrarian education plan. This aid by the public agencies should not

only be written material, motion pictures, lectures and such propaganda education but actual experimental woodlots set up in order to show the actual farm forestry process making successful returns. The public can well afford to do this because one fourth of our commercial forests is in farm forests and this type of forest production is more flexible and wielyd than the large forest tracts. This flexibility is very valuable in times of stress like a war when many products are needed immediately or in a time of economic adversity when employment of labor is a problem. Anything that legitimately increases the buying power of the great mass of farmers aids everyone in the nation.

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