

FARMING OPPORTUNITIES



COLUMBIA BASIN PROJECT

The Columbia Basin Project, which is to be irrigated with waters impounded by the Grand Coulee Dam, is in south-central Washington. The project area is approximately 80 miles long, north and south, and 60 miles wide, east and west. It totals 2,500,000 acres. Of this amount, 1,029,000 acres have been found suitable for irrigation. The main features of an irrigation system are being built under the direction of the Bureau of Reclamation to serve an area this size although it will be many years before all this land is under irrigation.

You undoubtedly have many questions concerning this project. The Bureau of Reclamation has, therefore, prepared this bulletin for veterans of World War II and for others who are interested in farming on the Columbia Basin Project. It is impossible to discuss in detail all questions concerning development of the project. This folder thus is limited to those most frequently asked. For further information concerning farming opportunities in the Columbia Basin Project, write the Bureau of Reclamation at Ephrata, Washington.

1. WHEN WILL WATER BE AVAILABLE FOR IRRIGATION?

Water was delivered first to two small areas located in the southern portion of the project near the town of Pasco. These two areas are identified as Irrigation blocks 1 and 2 and initially received water in 1948 and 1950, respectively. Blocks 1 and 2 are irrigated separately by pumping from the Columbia and Snake Rivers and could therefore be served prior to the completion of the main irrigation system which will distribute waters taken from Lake Roosevelt behind Grand Coulee Dam.

In 1952 construction of the main irrigation system is expected to be sufficiently advanced to make possible the delivery of water to approximately 87,000 acres. These lands are near Stratford and Adrian, under the Main Canal; Soap Lake, Ephrata, Winchester, and Quincy under the West Canal; and Moses Lake and Wheeler, under the East Low Canal. It is planned that throughout the project area, approximately 70,000 acres will be brought under irrigation annually during the next decade.

2. IS LAND AVAILABLE FOR HOMESTEADING ON THE COLUMBIA BASIN PROJECT?

No. The amount of public or unpatented land on the Project is small. This land, and that which the Government purchases from private owners, will be divided into family-size farm units and sold to qualified settlers at appraised dry-land values.

However, there are several Bureau of Reclamation Projects throughout the West on which homestead land will be available. Information regarding the location and approximate dates of opening for homestead entry can be obtained by writing the Commissioner, Bureau of Reclamation, Washington, D. C.

3. DO VETERANS HAVE PREFERENCE IN BUYING LAND FROM THE GOVERNMENT?

Yes. Preference will be given qualified veterans of World War II who submit applications during a specified period following each public announcement of the sale of Government-owned lands on the Columbia Basin Project.

4. HOW CAN GOVERNMENT-OWNED LAND BE PURCHASED?

No Government-owned land will be sold until shortly before water is made available to the irrigation block in which the land lies. By then, the land in these blocks will have been divided into farm units sufficiently large to support an average family at an adequate level of living. A public announcement will then be made by the Secretary of the Interior, giving the number, description, and value of each farm unit, and the conditions and terms under which the land will be offered for sale. Application blanks will be available from the Bureau of Reclamation offices at Ephrata or Coulee Dam, Washington, the Regional Office of the Bureau of Reclamation, Boise, Idaho, or from the office of the Commissioner, Bureau of Reclamation, Washington, D. C., but only after the public announcement of the sale of Government-owned lands has been issued.

A board of examiners will review all applications and will select qualified purchasers, on the basis of experience, character, industry, health, and capital. A public drawing will then be held to select the successful applicants from the list of those who qualify.

As stated earlier in Topic 3, veterans of World War II will have a preference in applying for purchase of Government-owned farm units. If any land remains after all veteran-preference applicants have been satisfied, it will be made available to other settlers. However, in view of the large number of inquiries received from veterans, and the limited acreage to be offered for sale by the Government, it is not probable that any Government-owned land will be available for non-veterans within the next six or seven years.

Veterans of World War II who are interested in purchasing Government-owned lands should write the Bureau of Reclamation, Ephrata, Washington, requesting that their names be placed on a mailing list to receive notices when any Government-owned lands on the Columbia Basin Project are offered for sale.

5. CAN PRIVATELY OWNED LAND BE PURCHASED ON THE PROJECT?

Yes. Approximately 80% of the irrigable land on the Columbia Basin Project is privately owned. The size of the holdings varies from a few acres to several thousand acres. Since, with minor exceptions, not more than one farm unit can be retained by an owner, it is obvious that much of this land will be sold to the Government or directly to new settlers.

The Bureau does not maintain a list of owners who have land to sell. The Chambers of Commerce in the major project towns can refer prospective purchasers to real estate agents handling listings of privately owned farm lands.

Little privately owned land is being offered for sale now. Owners of excess land generally prefer to keep their holdings intact until the final farm unit plats have been filed, or until water is available to their land. It appears, therefore, that it will be much easier to purchase privately owned land after water has been made available to a large portion of the project area.

Before buying a tract of land the prospective purchaser should write the Bureau of Reclamation, Ephrata, Washington, for information concerning the classification of the land, its appraised dry-land value, its eligibility to receive irrigation water, and the approximate date water is scheduled for delivery to the land. He should give a complete legal description of the land in which he is interested.

6. WHAT TYPES OF SOIL ARE FOUND ON THE COLUMBIA BASIN PROJECT?

Project soils, although variable, are well suited to irrigation farming. There are no areas of heavy, clay soils. Soil types, in general, range from deep, fine, wind-blown materials to coarse sand. Those suitable for irrigation farming range from fine silt loams to loamy sands, and their depths vary from less than 2 feet to more than 15 feet. Only land with soil of loamy texture and of sufficient depth to be productive under irrigation are included in the irrigable classes.

All land in the project has been classified carefully as to the productive capacity of the soil, into three major classes of irrigable land (1, 2, and 3). Lands considered unsuitable for irrigation were designated as Class 6.

Class 1 land has deep soil, not more than 5% slope, and is well suited to production of row crops, such as potatoes, sugar beets, and truck crops, as well as hay and pasture.

Class 2 land is divided into two principal sub-classes, 2T and 2S. Soil classified as 2T (T for topography) has practically the same depth and quality as Class 1, but may have up to 10% slope, or the land may be more rough in contour. Sub-class 2S (S for soil) may be slightly more shallow than Class 1 and may be slightly lighter in texture. A limited acreage of Class 2 was rated 2R because of loose rock in the plow zone, and some land was designated as 2D because of a drainage deficiency. There are likewise combinations that have differences in both soil and surface, like 2ST. Class 2 land is well adapted to diversified farming, but in general would not be farmed as intensively as Class 1. Generally, row crops would be grown less frequently in a crop rotation.

Class 3 land is divided into the same sub-classes. Land in these sub-classes is irrigable, but is considered best adapted to hay and pasture. Some Class 3R land has been mapped because of loose rock in the top six inches of soil, which makes intensive tillage difficult. As in the case of Class 2, there are some combinations of sub-classes, such as 3ST.

Land that is too rough, steep, sandy, rocky, or otherwise unsuited for economical farm operation is termed Class 6.

A set of three maps at a scale of one inch equals 10,000 feet showing the land classification in each of the three irrigation districts which cover the entire project, may be purchased for one dollar from the Ephrata, Washington, office of the Bureau of Reclamation. If payment is submitted by a check, money order, or a postal note, it should be made to the order of the Treasurer of the United States, at Portland, Oregon.

7. WHAT IS THE PRICE OF THE LAND?

To curb speculation in irrigable land on the Columbia Basin Project, Congress provided anti-speculative features in the Project Act. One provision resulted in the appraisal of all irrigable lands on the project on the basis of their dry-land value, and without giving consideration to the added value that irrigation might bring.

Under provisions of the Act, if land otherwise eligible to receive water is sold for more than the Government-appraised value, the right of the land to receive water can be canceled. The anti-speculative features of the Act remain in effect until five years from the date water is made available to the irrigation block in which the land is located. Reappraisals will be made by the Government upon application by the landowner.

At the time of the original appraisal, lands suited principally for grazing were valued within the following ranges:

Class 1	\$7.50	to	\$10.00 per acre
Class 2	5.00	to	7.00 per acre
Class 3	2.50	to	4.50 per acre
Class 6	1.00	to	2.00 per acre

Class 6 land is not suitable for irrigation and is not listed in the 1,029,000 irrigable acres of the Columbia Basin Project.

Lands adapted to dry farming were given higher values, ranging in some cases up to \$30 per acre. The appraised value of buildings and other improvements, including the value of clearing and leveling, was added to these values.

8. HOW MUCH LAND MAY AN INDIVIDUAL OR A FAMILY OWN?

With the exception of those who were owners before May 27, 1937 (who may retain their holdings up to 160 acres of irrigable land), a family may own only one farm unit. A family is defined in the Project Act as a husband and wife, together with their children under 18 years old.

The sizes of farm units will vary greatly, depending upon the productivity of the land, topography, location, and other factors. In general, the units will be from 45 to 80 acres on class 1 land, from 70 to 100 acres on Class 2 land, and from 80 to 140 acres on Class 3 land.

The Bureau recommends that no purchase of land for farm units be made until the farm-unit plat for the area in which the settler is interested has been approved. This will permit a person to acquire a farm of a size and shape that will meet the standards of the Columbia Basin Project Act. The settler also will avoid the possibility of having to buy or sell land to make his farm boundaries conform with those of the farm unit plat.

If, however, the prospective settler does buy land before farm units have been laid out, the Bureau recommends that he purchase at least 80 acres of Class 1 or a combination of Classes 1 and 2. If the land under consideration is largely Class 2 or a combination of Class 2 and Class 3, and particularly if there is some Class 6 included, he should acquire 160 acres.

Although farm units, as they are finally determined, may not be as large as described earlier, settlement authorities believe it will be better to own a few acres of excess property than to have to buy additional land later.

9. WHAT IS THE COST OF DEVELOPING A FARM ON THE PROJECT?

The cost of developing an irrigated farm from range land or dry-farm land is influenced by conditions on the individual farm. Some lands require heavy leveling; others scarcely any. Some can be irrigated efficiently from open ditches made with a plow or inexpensive ditcher; others require lined ditches, pipes, pressure sprinkling systems, or other costly installations. Dairy and poultry farms require extensive housing; potatoes and fruits may require farm storage facilities. Cost of machinery and livestock differs greatly with the size and type of farm. The depth and cost of wells for domestic water will differ greatly from locality to locality. The cost of a farm dwelling depends on such factors as size, materials, and type of construction.

It is important for settlers to realize that the cost of developing a farm depends upon physical conditions encountered on each particular farm, on the type of farm enterprises developed, on the quality of improvements, machinery, and stock acquired, and on the efficiency and skill with which development is accomplished. Development and purchase costs, including both cash costs and settlers' labor at 1948 prices, probably would be within the following ranges for most farm units on the project:

	Range		Average
Land Leveling	\$ 500 -	\$ 6,000*	\$ 3,000
Water Distribution System on Farm	200 -	8,000	1,500
Leveling and Distribution System	1,000*-	8,000	4,500
Domestic Water System	500 -	3,000	2,000
Farm Machinery	500 -	5,000	3,000
Farm Livestock	0 -	5,000	2,500
Farm Buildings (exclusive of dwelling)	1,000 -	6,000	2,000
Total (exclusive of dwelling)	7,000*-	25,000*	14,000
Farm Dwelling	2,500 -	10,000	5,000

*Since no farm is likely to be in either the low or the high part of the range in all items, these figures are not totals of individual items.

The foregoing estimates represent total costs. Cash cost ordinarily is much less than total cost because the farm operator and his family do much of the development work. The proportion of development work which can be done economically by the farm family varies with circumstances. Development in stages over a period of years permits greater use of family labor and reduces cash expenditures during the early years. However, the advantage in reduced cash outlay resulting from such a development program should be weighed against the disadvantages of slower development, and in the case of housing, of less comfort and fewer conveniences.

10. WHAT ARE THE TERMS OF SALE OF GOVERNMENT-OWNED LAND?

The public announcements under which Government-owned farm units are sold will describe the terms of sale. Although the terms are subject to change as each announcement is issued, it is anticipated that a down payment of approximately 20% of the purchase price will be required, with the balance payable over a period of twenty years.

11. WILL CREDIT BE AVAILABLE FOR FINANCING FARM DEVELOPMENT?

The Bureau of Reclamation can extend credit only by providing for deferred payments in the purchase of Government-owned farm units.

Settlers on other projects have obtained credit from the Farmers Home Administration, Production Credit Associations, local banks, farm machinery dealers, relatives, and others. Benefits under the "G-I Bill of Rights" also have helped in some cases.

Current investigations indicate that credit agencies will be ready to serve settlers on this project when the need arises. However, arranging for sufficient credit, if needed, is the responsibility of the settler. He should be sure that he can arrange for credit in the required amount to carry him through the first years of the development period.

12. HOW MUCH WATER WILL BE AVAILABLE FOR IRRIGATION?

In planning the irrigation system and structures, provision has been made for ample water for all lands on the project.

Careful study and investigations have been made of the probable water requirements of the various types of soil on the project. Four water-duty classes have been recommended, ranging from an annual allotment per acre of 3.25 acre-feet to 5 acre-feet. An allotment in acre-feet will be established for each farm unit, based upon soil type and other factors that influence water requirements. Water in excess of the established allotment can be acquired, but the charge per acre-foot will be higher.

13. WHAT CHARGES WILL BE MADE FOR IRRIGATION WATER?

Charges for water are divided into two categories: (1) those applying to construction, and (2) charges applying to the operation and maintenance of the irrigation system.

The average amount per acre which water users will have to pay for construction of the irrigation system is \$85. This amount will be prorated according to the productive capacity of the land. Owners of higher quality lands will pay more than \$85 per acre, and owners of lower quality lands will pay less. The construction charge will be repaid in annual installments during a forty-year period. Thus, the average annual payment will be \$2.12 per acre. No interest will be charged. The forty-year repayment period for each irrigation block will not start until the close of the development period - probably ten years after water is first made available to the block.

During the development period, there will be a minimum charge for each farm unit, which will entitle the water user to a specific quantity of water. Additional water will be paid for on a per-acre foot basis. These charges will depend upon the cost of operating and maintaining the irrigation system, and will be prorated also according to the productivity of the land. At 1950 prices, these costs will average approximately \$4.50 per acre per year. It is proposed that during the early years of the development period, the charges will be less than the operation and maintenance cost, with higher charges during the later years to balance the average cost over the ten-year period.

Under the prevailing prices, the average operation and maintenance charge after the development period will be similar to the average cost indicated for the development period. It may be prorated also according to the productive capacity of the land.

14. WHAT TECHNICAL ASSISTANCE WILL BE AVAILABLE TO NEW SETTLERS?

Plans are being developed under which the Bureau of Reclamation, the Washington Extension Service, and possibly other agencies, will cooperate to make technical assistance available to all settlers on the project. This assistance will include engineering for the leveling of land and for the farm irrigation system, planning of field layouts and farmsteads, planning farm buildings, selection of livestock, and advice on crops, crop rotation, and numerous other problems which confront new settlers.

15. WHAT ARE THE CLIMATIC CONDITIONS OF THE PROJECT?

Scanty rainfall, warm summers, and comparatively mild winters are typical of the entire project. The average annual temperature is 50.4 degrees. The average temperature during the irrigation season, April to October, is 62.2. Temperatures range from an average minimum of about 20 above zero in January to an average maximum of about 91 in July, although extremes of 33 degrees below zero and 113 above zero have been recorded in some parts of the project.

Average precipitation ranges from less than 6 inches, in the southwestern part of the area, to 10 inches in the northeastern uplands. Most of the precipitation falls in late autumn rains and winter snows. Very little occurs during the growing season, making it impossible to grow crops successfully without irrigation, except in areas where wheat is grown by dry-farming methods.

The average frost-free period for the entire project during the years 1941-1949 inclusive, was 170 days, with a variation of 127 to 212 days in different sections of the area.

16. WHAT CROPS ARE BEST ADAPTED TO THE AREA?

Lands of the project are physically and climatically suited to a wide range of crops, including alfalfa, clovers, small grains, corn, sugar beets, potatoes, and numerous vegetable, fruit, seed, and specialty crops. Markets, rather than physical or climatic factors, will determine the acreage of intensive crops -- vegetable, fruit, seed, and specialty crops. General diversified farming, built around alfalfa, clover, and pasture, with potatoes and sugar beets as cash crops and with dairying the most important livestock enterprise, is expected to be typical of most areas.

For the project as a whole at mature development, land use may be approximately as follows: Hay 40%, pasture 20%, small grains 15%, and other crops 25%.

17. WHAT PROVISIONS WILL BE MADE FOR ROADS AND SCHOOLS?

Most of the project already is served by a system of primary highways and accredited schools. It is expected that new schools will be established and roads built by County and State authorities as needs arise.

18. HOW CAN THE SETTLER OBTAIN DOMESTIC WATER?

This is an important problem which has been studied extensively. Ground water for an adequate domestic water supply is reached at depths of 200 to 500 feet. Obviously, the cost of drilling a well for each farm unit would be burdensome in many parts of the project. In such cases the Bureau recommends that settlers cooperate in developing community water systems to serve several families from one well, thus reducing substantially the cost to each farm unit.

This can be accomplished by the creation of Local Improvement Districts operating under State law governing irrigation districts. Such a plan permits repayment over a period of fifteen years.

19. WILL ELECTRIC POWER BE AVAILABLE TO SETTLERS ON THE PROJECT?

Present and potential power installations on the Columbia River, including the Grand Coulee Dam, will produce an abundant supply of power for farms on the Project. Columbia River power is being distributed to towns and some rural areas of the Project by private companies and public utility districts. The Bureau expects that these facilities also will make power available to newly settled areas early in the development period.

20. IS IMPROVEMENT OF LAND BEFORE WATER IS AVAILABLE RECOMMENDED?

No. Most of the soils of the project are somewhat light in texture and tend to blow quite badly if disturbed very much in advance of the time water is to be applied. The Bureau strongly recommends that all improvement such as clearing, leveling, and plowing be delayed until the year or season that water is definitely available.

21. WHAT MARKETS ARE AVAILABLE FOR CROPS AND LIVESTOCK?

Adequate markets for agricultural products of the project area are indicated by the recent industrial expansion of the Pacific Northwest and its resulting increased population, the limited farm lands of mountainous Western states, and the general uptrend in living standards throughout the United States. There is already a demand for more farm products of many kinds than are now being produced in the Western states. This is particularly true of most livestock and livestock products. Since project development will be gradual and will require a considerable period of years to complete, production from the project probably will be absorbed by the markets with little or no unfavorable effects.

Excellent transportation facilities are available for getting products to market. Three transcontinental main-line railways cross the project area and are supplemented by three branch lines.

United States Highway No. 10 crosses the north-central section, U. S. Highway No. 395 the southeasterly section, and State Highway No. 7 the most northerly portion. Secondary State highways and county roads form a network in the inhabited regions. New roads will need to be built as blocks are brought under irrigation so adequate access to shipping and distributing points will be available.

22. ARE THERE JOB OPPORTUNITIES IN CONSTRUCTING THE IRRIGATION SYSTEM?

Employment opportunities are seasonal, being particularly limited during the winter months and increasing during the spring and summer. Construction is accomplished by private contractors who hire through local offices of labor unions. Current information regarding employment conditions in this area can be obtained by writing the Employment Security Department, P. O. Box 657, Ephrata, Washington.

All positions in the Bureau of Reclamation are filled from registers established as a result of U. S. Civil Service examinations. Persons interested in employment with the Government on the project should write to the Personnel Officer, Bureau of Reclamation, Ephrata, Washington.

23. ARE THERE BUSINESS OPPORTUNITIES IN TOWNS OF THE PROJECT?

Information on this subject should be obtained from the Chambers of Commerce in the principal towns of the project: Soap Lake and Ephrata in the northern part; Quincy in the northwest; Moses Lake, Othello, and Warden in the central area; and Connell and Pasco in the southern part.

Persons should remember that the project will be in the development stage for many years and that the greatest opportunities for successful businesses will come when large-scale settlement begins.

Bureau of Reclamation
Ephrata, Washington

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Under the present construction and development program, the irrigation system will be built to serve about 500,000 acres during the period of 1952 to 1960, inclusive. Each year during this period, we expect that from 500 to 1,000 new farms will be added to the irrigable area.

Water was first delivered to two small areas in the southern part of the project near Pasco in 1948 and 1950. These areas, known as Irrigation Blocks 1 and 2, are irrigated by pumping from the Columbia and Snake Rivers.

During the year 1952, water will be first delivered to large blocks of land under the main project irrigation system. These are in the northern part of the project near the towns of Quincy, Ephrata, Soap Lake, and Moses Lake. This land will receive water from the two large branches of the Main Canal, known as the East Low and West Canals. In 1953, the first large blocks of land in the south-central part of the project will receive water. These will be served from the Potholes East Canal which carries water from the Potholes Reservoir in the central part of the project. In the succeeding years, additional blocks of land will be irrigated from each of these large canals.

On the following pages, we have endeavored to answer the questions most commonly asked by people who are interested in farming on this project. If you wish further information concerning farming opportunities on the Columbia Basin Project, write the Bureau of Reclamation at Ephrata, Washington.

1. IS LAND AVAILABLE FOR HOMESTEADING ON THE COLUMBIA BASIN PROJECT?

No. The amount of public or unpatented land on the project is small. This land, and that which the Government purchases from private owners, will be divided into family-size farm units and sold to qualified settlers at appraised dry-land values.

2. HOW CAN GOVERNMENT-OWNED LAND BE PURCHASED?

Each year during the development of the project all Government-owned farms for which water will be available the following year will be offered for sale. From 50 to 150 farms will be sold each year. These will usually be listed in three sales, one for each of the three irrigation districts.

Veterans of World War II who submit applications during a 45-day period following the issuance of each sale announcement have preference in buying these Government-owned farms. Under present rules, applicants must have two years' farm experience, \$4,500 net worth, and be well qualified as to character, industry, and health.

Notices of land sales will be mailed, as soon as they are issued, to veterans of World War II who write to the Bureau of Reclamation, Ephrata, Washington, and request that their names be placed on the mailing list.

At the present time, the large number of applicants claiming veterans preference makes it unlikely that a non-veteran would be able to select a federally owned farm.

The Bureau recommends that no purchase of land for farm units be made until the farm unit plat for the area in which the settler is interested has been approved. This will permit a person to acquire a farm of a size and shape that will meet the standards of the Columbia Basin Project Act. The settler also avoids the possibility of having to buy or sell land to make his farm boundaries conform with those of the farm unit plat.

3. CAN PRIVATELY OWNED LAND BE PURCHASED ON THE PROJECT?

Because of the strong demand for farm land on this project during the last few years, very little land is now being offered for sale. Most project land is now owned in tracts of suitable size for irrigated farms. Very little is owned as large grazing or dry-farm holdings.

Chambers of Commerce in the main project towns can give you the names of real estate agents who may have project farm lands listed for sale.

Much of the project land is owned by persons who will develop it under lease. If you wish to farm leased land, realtors may also help you locate land that suits your needs.

Before buying a tract of land, the prospective purchaser should write the Bureau of Reclamation, Ephrata, Washington, for information concerning the classification of the land, its appraised dry-land value, its eligibility to receive irrigation water, and the approximate date water is scheduled for delivery to the land. He should give a complete legal description of the land in which he is interested.

4. HOW MUCH LAND MAY AN INDIVIDUAL OR A FAMILY OWN?

With the exception of those who were owners before May 27, 1937 (who may retain their holdings up to 160 acres of irrigable land), a family may own only one farm unit. A family is defined in the Project Act as a husband and wife, together with their children under 18 years of age.

The sizes of farm units will vary greatly, depending upon the productivity of the land, topography, location, and other factors. In general, the farms will be from 45 to 80 acres on class 1 land, from 70 to 100 acres on class 2 land, and from 80 to 140 acres on class 3 land.

If, however, the prospective settler does buy land before farm units have been laid out, the Bureau recommends that he purchase at least 80 acres of class 1 or a combination of classes 1 and 2. If the land under consideration is largely class 2 or a combination of class 2 and class 3, and particularly if there is some class 6 included, he should acquire 160 acres. Although farm units, as they are finally determined, may not be this large, settlement authorities believe it will be better to own a few acres of excess property than to have to buy additional land later.

5. WHAT IS THE PRICE OF THE LAND?

To curb speculation in irrigable land on the Columbia Basin Project, Congress provided anti-speculative features in the Project Act. One provision resulted in the appraisal of all irrigable lands on the project on the basis of their dry-land value, and without giving consideration to the added value that irrigation might bring.

Under provisions of the Act, if land otherwise eligible to receive water is sold for more than the Government-appraised value, the right of the land to receive water can be canceled. The anti-speculative features of the Act remain in effect until five years from the date water is made available to the irrigation block in which the land is located. Reappraisals will be made by the Government upon application by the landowner.

Land suited principally for grazing is currently valued at \$5 to \$15 per acre, depending on its productivity and location. Dry farm land is valued at \$40 to \$75 per acre. Buildings and other improvements are appraised separately from the land.

6. WHAT ARE THE TERMS OF SALE OF GOVERNMENT-OWNED LAND?

The public announcements under which Government-owned farm units are sold will describe the terms of sale. A down payment of 20% of the purchase price will be required, with the balance payable over a period of twenty years.



7. WHAT IS THE COST OF DEVELOPING A FARM ON THE PROJECT?

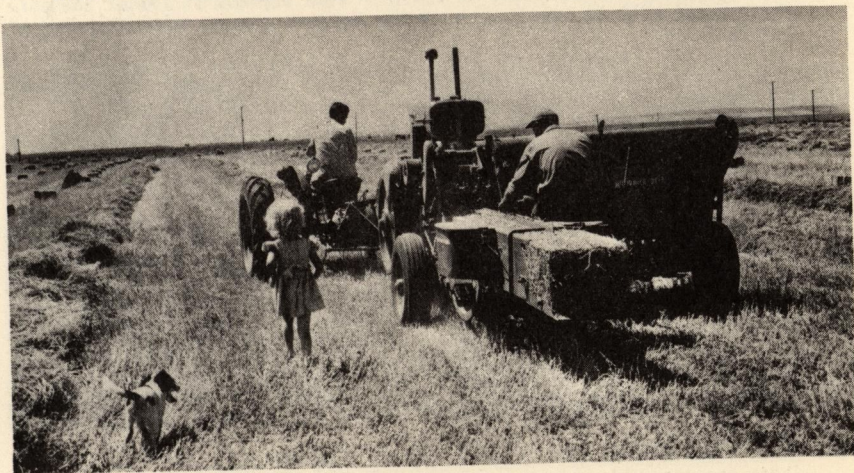
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It is important for settlers to realize that the cost of developing a farm depends upon physical conditions encountered on each particular farm, on the type of farm enterprises developed, on the quality of improvements, machinery and stock acquired, and on the efficiency and skill with which development is accomplished. Development and purchase costs, including both cash costs and settlers' labor at 1951 prices, probably would be within the following ranges for most farm units on the project:

	Range	Average
Land Leveling and Clearing	\$ 500 - \$ 6,000*	\$ 3,500
Water Distribution System on Farm	200 - 8,000	1,500
Domestic Water System	500 - 3,000	2,000
Farm Machinery	500 - 8,000	5,000
Farm Livestock	0 - 6,000	3,000
Farm Buildings (exclusive of dwelling)	1,000 - 6,000	3,000
TOTAL (exclusive of dwelling)	15,000 - 23,000	18,000
Farm Dwelling	2,500 - 12,000	8,000

* Since no farm is likely to be in either the low or the high part of the range in all items, these figures are not totals of individual items.

The foregoing estimates represent total costs. Cash cost ordinarily is much less than total cost because the farm operator and his family do much of the development work. The proportion of development work which can be done economically by the farm family varies with circumstances. Development in stages over a period of years permits greater use of family labor and reduces cash expenditures during the early years. However, the advantage in reduced cash outlay resulting from such a development program should be weighed against the disadvantages of slower development, and in the case of housing, of less comfort and fewer conveniences.



8. WILL CREDIT BE AVAILABLE FOR FINANCING FARM DEVELOPMENT?

New settlers on this project have obtained credit from the Farmers Home Administration, Production Credit Associations, local banks, farm machinery dealers, relatives, and others. Arranging for sufficient credit, if needed, is the responsibility of the settler. He should be sure that he can arrange for credit which, added to his own capital, will carry him through the first years of the development period.

The Bureau of Reclamation can extend credit only by providing for deferred payments in the purchase of Government-owned farm units.

9. HOW MUCH WATER WILL BE AVAILABLE FOR IRRIGATION?

In planning the irrigation system and structures, provision has been made for ample water for all lands on the project.

Careful study and investigations have been made of the probable water requirements of the various types of soil on the project. Four water-duty classes have been recommended, ranging from an annual allotment per acre of 3.50 acre-feet to 5 acre-feet. An allotment in acre-feet will be established for each farm unit, based upon soil type and other factors that influence water requirements. Water in excess of the established allotment can be acquired, but the charge per acre-foot will be higher.



10. WHAT CHARGES WILL BE MADE FOR IRRIGATION WATER?

Charges for water are divided into two categories: (1) those applying to construction, and (2) charges applying to the operation and maintenance of the irrigation system.

The average amount per acre which water users will have to pay for construction of the irrigation system is \$85. This amount will be prorated according to the productive capacity of the land. Owners of higher quality lands will pay more than \$85 per acre, and owners of lower quality lands will pay less. The construction charge will be repaid in annual installments during a forty-year period. Thus, the average annual payment will be \$2.12 per acre. No interest will be charged. The forty-year repayment period for each irrigation block will not start until the close of the development period - probably ten years after water is first made available to the block.

During the development period, there will be a minimum charge for each farm unit, which will entitle the water user to a specific quantity of water. Additional water will be paid for on a per-acre foot basis. These charges will depend upon the cost of operating and maintaining the irrigation system, and will be prorated also according to the productivity of the land. At 1952 prices, these costs will average approximately \$5.50 per acre per year. It is proposed that during the early years of the development period, the charges will be less than the operation and maintenance cost, with higher charges during the later years to balance the average cost over the ten-year period.

Under the prevailing prices, the average operation and maintenance charge after the development period will be similar to the average cost indicated for the development period. It may be prorated also according to the productive capacity of the land.

11. WHAT TYPES OF SOIL ARE FOUND ON THE COLUMBIA BASIN PROJECT?

Project soils, although variable, are well suited to irrigation farming. There are no areas of heavy, clay soils. Soil types, in general, range from deep, fine, wind-blown materials to coarse sand. Those suitable for irrigation farming range from fine silt loams to loamy sands, and their depths vary from less than 2 feet to more than 15 feet. Only lands with soil of loamy texture and of sufficient depth to be productive under irrigation are included in the irrigable classes.

All land in the project has been classified carefully as to the productive capacity of the soil, into three major classes of irrigable land (1, 2, and 3). Lands considered unsuitable for irrigation were designated as class 6.

Class 1 land has deep soil, not more than 5% slope, and is well suited to production of row crops, such as potatoes, sugar beets, and truck crops, as well as hay and pasture.

Class 2 land is divided into two principal sub-classes, 2T and 2S. Soil classified as 2T (T for topography) has practically the same depth and quality as class 1, but may have up to 10% slope, or the land may be more rough in contour. Sub-class 2S (S for soil) may be slightly more shallow than class 1 and may be slightly lighter in texture. A limited acreage of class 2 was rated 2R because of loose rock in the plow zone, and some land was designated as 2D because of a drainage deficiency. There are likewise combinations that have differences in both soil and surface, like 2ST. Class 2 land is well adapted to diversified farming, but in general would not be farmed as intensively as class 1. Generally, row crops would be grown less frequently in a crop rotation.

Class 3 land is divided into the same sub-classes; land in these sub-classes is irrigable, but is considered best adapted to hay and pasture. Some class 3R land has been mapped because of loose rock in the top six inches of soil, which makes intensive tillage difficult. As in the case of class 2, there are some combinations of sub-classes, such as 3ST.

Land that is too rough, steep, sandy, rocky, or otherwise unsuited for economical farm operation is termed class 6.

12. WHAT ARE THE CLIMATIC CONDITIONS OF THE PROJECT?

Scanty rainfall, warm summers, and comparatively mild winters are typical of the entire project. The average annual temperature is 50.4 degrees. The average temperature during the irrigation season, April to October, is 62.2. Temperatures range from an average minimum of about 20 above zero in January to an average maximum of about 91 in July, although extremes of 33 degrees below zero and 113 above zero have been recorded in some parts of the project.

Average precipitation ranges from less than 6 inches, in the southwestern part of the area, to 10 inches in the northeastern uplands. Most of the precipitation falls in late autumn rains and winter snows. Very little occurs during the growing season, which makes it impossible to grow crops successfully without irrigation, except in areas where wheat is grown by dry-farming methods.

The average frost-free period for the entire project during the years 1941-1949, inclusive, was 170 days, with a variation of 127 to 212 days in different sections of the area.

13. WHAT CROPS ARE BEST ADAPTED TO THE AREA?

Lands of the project are suited to a wide range of crops, including alfalfa, clovers, small grains, corn, sugar beets, potatoes, and numerous

vegetable, fruit, seed, and specialty crops. Markets, rather than physical or climatic factors, will determine the acreage of intensive crops - vegetable, fruit, seed, and specialty crops. General diversified farming, built around alfalfa, clover, and pasture, with potatoes and sugar beets as cash crops and with dairying the most important livestock enterprise, is expected to be typical of most areas.

For the project as a whole at mature development, land use may be about as follows: Hay 40%, pasture 20%, small grains 15%, and other crops 25%.



14. WHAT TECHNICAL ASSISTANCE IS AVAILABLE TO NEW SETTLERS?

The Washington Extension Service and the Bureau of Reclamation are cooperating to make technical assistance available to all settlers on the project. This assistance includes engineering for the leveling of land, planning of field layouts, and farmsteads, planning farm buildings, selection of livestock, and advice on kinds and varieties of crops, crop rotation, and numerous other problems which confront new settlers.

Much of the project is in Soil Conservation Districts. The services of conservationists and agricultural engineers of the Soil Conservation Service are available to settlers in these districts.

15. IS IMPROVEMENT OF LAND BEFORE WATER IS AVAILABLE RECOMMENDED?

No. Most of the soils of the project are somewhat light in texture and tend to blow quite badly if disturbed very much in advance of the time water is to be applied. The Bureau strongly recommends that all improvement such as clearing, leveling, and plowing be delayed until the year or season that water is definitely available.

16. WHAT PROVISIONS WILL BE MADE FOR ROADS AND SCHOOLS?

Most of the project is already served by a system of primary highways and accredited schools. It is expected that new schools will be established and roads built by County and State authorities as needs arise.

17. HOW CAN THE SETTLER OBTAIN DOMESTIC WATER?

This is an important problem which has been studied extensively. Ground water for an adequate domestic water supply is reached at depths of 100 to over 500 feet. Obviously, the cost of drilling a separate well for each farm would be burdensome in many parts of the project. In such areas, the Bureau recommends that settlers cooperate in developing community water systems to serve several families from one well, thus greatly reducing the cost to each farm unit. This can be done by the formation of partnerships, associations, or Local Improvement Districts.

18. WILL ELECTRIC POWER BE AVAILABLE TO SETTLERS ON THE PROJECT?

Power installations on the Columbia River, including the Grand Coulee Dam, produce an abundant supply of power for farms on the project. Columbia River power is being distributed to towns and some rural areas of the project by private companies and public utility districts. The Bureau expects that these facilities also will make power available to newly settled areas early in the development period.

19. WHAT MARKETS ARE AVAILABLE FOR CROPS AND LIVESTOCK?

Adequate markets for agricultural products of the project area are indicated by the recent industrial expansion of the Pacific Northwest and its resulting increased population, the limited farm lands of mountainous Western states, and the general uptrend in living standards throughout the United States. There is already a demand for more farm products of many kinds than are now being produced in the Western states. This is particularly true of most livestock and livestock products. Since project development will be gradual and will require a considerable period of years to complete, production from the project probably will be absorbed by the markets with little or no unfavorable effects.

Excellent transportation facilities are available for getting products to market. Three transcontinental main-line railways cross the project area and are supplemented by three branch lines.

United States Highway No. 10 crosses the north-central section, U.S. Highway No. 395 the southeasterly section, and State Highway No. 7 the most northerly portion. Secondary State highways and county roads form a network in the settled areas. New roads will be built as new land is brought under irrigation so adequate access to shipping and distributing points will be available.

20. ARE THERE JOB OPPORTUNITIES IN CONSTRUCTING THE IRRIGATION SYSTEM?

Employment opportunities are seasonal, being particularly limited during the winter months and increasing during the spring and summer. Project works are constructed by private contractors who hire through local offices of labor unions. Current information regarding employment conditions in the project area can be obtained by writing the Employment Security Department. Inquiries pertaining to the northern part of the project should be addressed to P.O. Box 657, Ephrata, Washington, and inquiries about the southern portion to P.O. Box 53, Pasco, Washington.

All positions in the Bureau of Reclamation are filled from registers established as a result of U.S. Civil Service examinations. Persons interested in employment with the Government on this project should write to the Personnel Officer, Bureau of Reclamation, Ephrata, Wash.

21. ARE THERE BUSINESS OPPORTUNITIES IN TOWNS OF THE PROJECT?

Information on this subject should be obtained from the Chambers of Commerce in the principal towns of the project: Soap Lake and Ephrata in the northern part; Quincy in the northwest; Moses Lake, Othello, and Warden in the central area; and Connell and Pasco in the southern part.

Bureau of Reclamation
Ephrata, Washington