

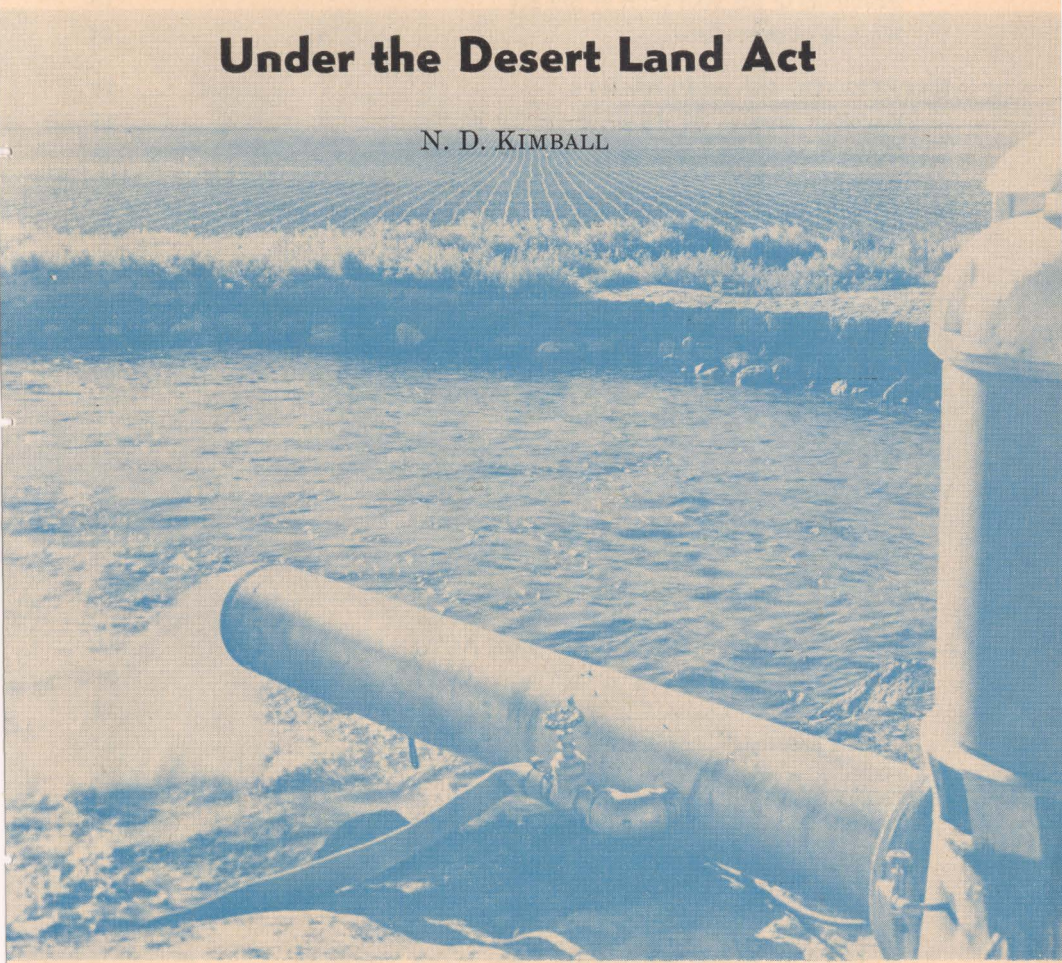


UNIVERSITY OF IDAHO
College of Agriculture

Irrigation Development in Idaho

Under the Desert Land Act

N. D. KIMBALL



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In Cooperation With
Farm Economics Research Division
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Summary

PUBLIC land is still being settled and developed under the provisions of the Desert Land Act passed in 1877. Ninety percent of all entries up to 1956 were made before 1920. New interest in obtaining land under the act was aroused in the 1950's because of improved methods and equipment for drilling and pumping ground water. More applications were filed between 1950 and 1956 than in the previous 30 years combined.

Idaho, with more than 3 1/3 million acres allowed for original entry, is one of the leading states in number of acres to be developed under the Desert Land Act. By 1956, there were 1,172,520 acres patented under the act; 200,000 acres of desert land had been entered and was awaiting development. This amounted to 40 percent of the unperfected land entries in the United States in 1956. From 1950 through 1956, 278 entrymen have patented more than 45,000 acres in Idaho.

Three areas of Idaho were surveyed to find out what was happening to entrymen under the Desert Land Act. Hazelton, an excellent agricultural area with most of the land completely developed; Howe, a livestock area with a limited supply of water; and Raft River, an area in which the land ranges from good to poor and the ground water supply is indefinite.

The cost of land and water development was higher at Hazelton than in the other areas. The most expensive item was the 360-foot well with a 200-hp pump. The average number of acres in each entry was 263. In 1956, complete development of a unit including a set of new buildings, cost an average of \$150 per acre. Developed land would sell for a little more than \$400 an acre. Estimated net farm income found by preparing farm budgets was \$17,321 for 270 crop acres. A 150-acre unit would return \$8,547 in net farm income annually.

A main problem faced by entrymen at Hazelton was the large amount of money needed to pay the costs of development. The land and water resources were excellent and the developed units were highly productive. All of the entrymen who had or were able to borrow the necessary funds established new farm units.

Practically all of the successful Howe entrymen were farmers already living in the area. They developed an average of 132 acres of new desert land to add to owned units of 223 acres. The combination of the new and old farm land gave them profitable farms.

Average costs of farm development were low for several reasons. Farmers used their own equipment for land preparation; only a few new buildings were needed; and wells in the Howe area were shallower than in other areas. The cost per acre was only \$56.26. When completely developed, good land at Howe was worth

about \$150 an acre. Net farm income from hay, grain, and cattle-fattening operation was estimated at \$8,127 from a 355-acre unit. A 300-acre unit operated independently from an old farm would return \$6,632 net farm income. The independent desert-land unit required more than twice as much new investment as did the old and new units combined.

In the Howe area, an adequate water supply was the chief problem. Many non-resident applicants did not try to develop the unit allowed because it was doubtful whether there would be enough water for successful irrigation. Area farmers already had water rights on a river and were in good position to risk getting additional water from a well.

Entrymen's experiences at Raft River did not fall into a uniform pattern as occurred in the other two areas. Land quality varied from excellent to poor. The water supply was from an underground basin and was less reliable than at Hazelton. It cost about \$75 an acre to develop a farm unit at Raft River. Entrymen's experiences were so varied that the mature crop production possibilities could not be estimated realistically. Developed land was priced at \$200 an acre.

More than half of the entrymen were farmers. Farmers who lived near desert-land areas were in the most favorable position to acquire and develop new units. As they lived nearby, they knew which public land was open to application, and they had had experience on land what was similar to the desert land. Also, they had assets of land, equipment and credit.

On the average, one in four entrymen were businessmen, who perceived that desert entry offered good investment possibilities. Farms developed by businessmen were leased to farm tenants. In some instances, one man supplied funds for the development of multiple units of four or more entries.

The chief problem facing entrymen or would-be entrymen was lack of information. Many of them did not understand the regulations and provisions of the Desert Land Act and related public land laws. They could not estimate the cost of developing water and land or the costs of necessary buildings and equipment. An examination of the regulations, costs of development, costs of farming, water supply, and possible earnings from desert land would greatly increase the chances of success.

Another problem in desert land entry was the difficulty of obtaining adequate funds with which to finance land and water development. A major part of the development had to be completed before any of the land could return income to the entryman. Desert land cannot be used as security for a development loan as title to the land rests with the government until the patent is issued.

Irrigation Development in Idaho Under the Desert Land Act

N. D. KIMBALL

Introduction

CONGRESS passed the Desert Land Act on March 3, 1877. In the same year, the Army defeated the Nez Perce Indians of Idaho, the last tribe to make a stand against the United States. This was 25 years before passage of the Reclamation Act, which had much to do with the development of the West during the last half-century. Conditions of land settlement and development in 1877 differed greatly from those of recent years. The Desert Land Act, with modifications, is still used to acquire title to desert land in the West.

Interest in entering public land and developing irrigated farms under provisions of the Desert Land Act has been renewed. How is this act, which was designed originally to meet pioneering conditions, being used? What success are these modern pioneers having? What does it take to develop an irrigated farm? What problems are encountered by settlers and public land administrators? This report attempts to answer some of these and related questions as they apply to conditions in Idaho.

The Desert Land Act

The Desert land Act was preceded by nearly a century in which disposal and management of the public land was a major public issue. By 1862, land policies such as sales for cash or credit, grants to railroads and other corporations, guarantee of pre-emption rights in 1841, and grants to states had disposed of nearly half of the public domain. Westward movement of land settlement had reached into Iowa and scattered places beyond.

The Homestead Act of 1862, which was passed to stimulate development of the remaining public land by "family farmers," provided that any citizen could take up residence on 160 acres of vacant public land. To receive title to land, he had to live on it for 3 years, build a home, and cultivate one-eighth of the total acreage.

Most of the land remaining in public ownership in 1862 was in the area presently comprising the 11 Western States, which make up 40 percent of the total land area of the United States. The Home-

* Agricultural Economist, Farm Economics Research Division, Agricultural Research Service, United States Department of Agriculture.

stead Act was suitable for the humid and semihumid areas in the North and Midwest, but when settlers tried to develop homesteads in the West, many met with failure. Much of the West was suitable for farming only if the land was irrigated.

Congress soon recognized that the Homestead Acts was ill-suited to western conditions. To modify or supplement it, the Desert Land Act was passed in 1877. It provided for the sale of a section (640 acres) of land to a settler who would irrigate part of it within 3 years after filing. He would pay 25 cents an acre at the time of filing and \$1 an acre when he made final proof of compliance with the law. Provisions of the act applied only to the 11 Western States.

The Desert Land Act was criticized by the Land Commissioner, the Secretary of the Interior, and many others.¹ The act was indefinite; it invited speculators to obtain large holdings. Cattle companies, for example, obtained large acreages by having each of their cowhands file entries. Often, only a pretense was made at developing irrigation. Many irrigation systems consisted merely of a ditch running from a waterhole that was usually dry, up a hill, and onto land that was never plowed. Much of the land acquired in this way was used as range, not as cropland. Under the original act, land could be used for 3 years for the 25 cent down payment, after which it could be sold or assigned.

The Surveyor General for Idaho was one of the first to propose that the desert-entry method was inadequate. In a report made in 1889, he stated that private parties should not be permitted to file on land and appropriate water almost indiscriminately. It would be better to permit development by the government or to grant the land to the states in order to assure comprehensive development of all lands suitable for irrigation.² Other state land commissioners reported that the act was not working primarily in the interest of homesteaders.³

In 1891, The Congress acted to correct many faults in the laws under which public land could be obtained by citizens. The pre-emption laws were repealed, the President was allowed to set aside national parks, and the Homestead Act and Desert Land Act were amended in several important respects. The Desert Land Act was amended as follows:

- (1) One person could now enter on 320 instead of 640 acres.
- (2) Improvements costing at least \$1 per acre were to be made each year for 3 years.
- (3) Water was to be available for the total acreage of irrigable land and one-eighth of the land had to be put under cultivation for final proof.

¹ Robbins, Roy M., *Our Landed Heritage*, Princeton University Press, Princeton, N. J., 1942, p. 249.

² Hibbard, B. H., *History of Public Land Policies*, Peter Smith, New York, 1939, p. 430.

³ *Ibid.*, p. 429.

- (4) Several persons could join together in a project to obtain water for several entries.
- (5) Only residents of the state in which the land was situated were allowed the privilege of entry except in Nevada.

Other major provisions of the Desert Land Act that are in effect are:

- (1) Land that may be entered is limited to surveyed, vacant, unreserved, unappropriated desert land except that lands withdrawn for classification or contained in grazing districts can be opened for entry at the discretion of the Secretary of the Interior or his delegate. If the land is more valuable for the production of agricultural crops than for the production of native grasses and forage plants it may be opened for entry.⁴
- (2) Only one tract per person is allowed and it must be in compact form.
- (3) The applicant shall have or shall have taken all reasonable steps to acquire a bona fide water right based on the laws of the State.
- (4) An irrigation plan must be filed with the application showing the proposed layout of the irrigation system and evidence of an adequate supply of water must be presented.
- (5) Final proof, subject to extension for certain causes, is to be filed within 4 years after the entry is allowed.

Procedure For Acquiring Land

To acquire a tract of land under a desert entry, an applicant must take several steps. The number may vary with individual tracts. The usual steps are:

- a. The applicant determines whether the tract of land desired is in public ownership and open to application. (Some desirable land may be in Reclamation or other types of withdrawals.)
- b. The applicant examines personally the tract of land, its soil and topography, to ascertain how much is of tillable quality and how the tract can best be served with irrigation water.
- c. An application is filed with the Bureau of Land Management, U.S. Department of Interior. It must be accompanied by a map of the proposed plan of irrigation and information on source of irrigation water. The usual practice is to use ground water for irrigation. An approved permit to appropriate ground water may be obtained from the State Reclamation Engineer and submitted with the application. The application and all accompanying documents are filed in **duplicate**. The application must be accompanied by a

⁴ Section 7, Taylor Grazing Act of 1934, (as amended, 43 U.S.C. 315f).

\$15 filing fee and initial purchase charge of 25 cents per acre.

- d. After the application is complete and in proper order, it is referred for classification of the land by the authorized officer of the Bureau of Land Management. Prior to allowance, authorized range users are given 30 days in which they may protest a classification favorable to entry. Assuming a favorable classification of land for desert entry, the next step toward an allowance of the application can be taken by the Bureau of Land Management.
- e. Where irrigation water is to be obtained by pumping from a well, the Bureau of Land Management offers a chance to the applicant to make a showing as to the availability of water. The applicant may obtain a Special Land Use Permit to drill a well. This permit is filed to cover 5 acres embracing the well site and is issued for a period of one year. Under this permit, the applicant acquires a legal access to 5 acres for drilling a well. A \$10 filing fee and \$5 advance rental must accompany the application for a Special Land Use Permit.
- f. Upon completion of the well and the filing of a report as to the availability of adequate ground water with the Bureau of Land Management, entry may be allowed, if all is regular.⁵
- g. Upon receipt of a Notice of Allowance, an entryman may proceed with all development. He must complete his development in 4 years from the date of allowance, but he may apply for title in less time if work is completed. Or, under a special act of the Congress, he may elect to wait until March 1, 1959, to begin development.
- h. During each year the entry is allowed, he must spend the equivalent of \$1 an acre toward development of the entry. He must submit annual proof statements, signed by witnesses, of the nature and value of the work done. Annual proof is required for each of the first 3 years showing expenditure of \$1 per acre. Full expenditure compliance can be made in the first year or in a combination of the first and second year.
- i. When the entry is ready for patent, or by the end of 4 years, an applicant files his intention to make proof. This lists the proof-taking officer and the names of witnesses who will appear for the proof taking. The Bureau of Land Management sets a date and proceeds with the required advertising, which must be paid for by the entryman.

⁵ Formerly, it was not the policy to allow the applicant to make a showing as to water under Special Land Use Permit drilling. Most of the desert entries covered by this study were allowed on the basis of the availability of water as shown by other wells in the locality.

- j. The entryman and witnesses appear before the proof-taking officer on the appointed date and complete the forms, which are submitted in duplicate to the Bureau of Land Management.
- k. At the time of final proof, the entryman must pay a final purchase charge of \$1 an acre for the land.
- l. Assuming that all is in order, this is the end of action by the entryman. Briefly, during the years of allowance, the entryman must have (1) developed a permanent, adequate supply of irrigation water to serve all of the irrigable land within his entry, (2) constructed an adequate water distribution system to serve all of the irrigable land within the entry, and (3) reduced to actual cultivation at least one-eighth of the total area.
Filing of annual proofs and final proof each require a \$5 recordation charge.

Use of the Desert Land Act

More than 160,000 entries representing more than 33 million acres of public land in the United States were filed for under the Desert Land Act by June 1956. One in eight of these was in Idaho. Thirty percent of this land has been patented. Ninety-five

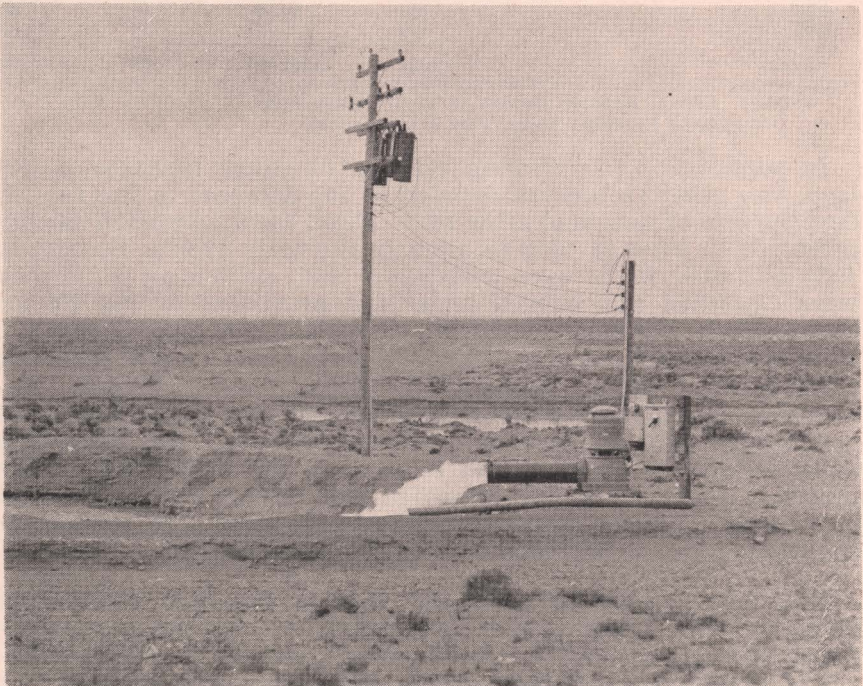


Figure 1.—Electric powered pumps lifts ground water for irrigating south-eastern Idaho desert lands.

percent of all entries was made before 1920. Very few entries were made during the depression years in the 1930's—only 83 were made between 1936 and 1942. Activity under the act increased in the 1950's; from 1950 to 1956, 2,323 applications were filed.

Idaho, with 42 percent of the applications, was the most active State during this latter period. Even so, 90 percent of all land entered in the State and 80 percent of all land patented under the act was entered before 1920.

Table 1 shows the number of original and final entries in Idaho from 1887 through 1956. Most of the good land that could be irrigated easily from surface sources of water was taken up by 1920.

Table 1.—Desert Land Act entries, Idaho, 1887-1956

Period or Year ¹	:	Original entries allowed		Entries patented	
		Number	Acres	Number	Acres
1887-1919	:	17,612	3,000,110	4,637	925,636
1920-1935	:	801	117,545	766	110,497
1936-1947	:	44	4,575	578	91,008
1948-1952	:	266	50,200	50	6,257
1953	:	150	28,258	38	7,308
1954	:	367	93,373	44	5,985
1955	:	165	39,412	69	11,287
1956	:	123	31,922	80	14,562
Total		19,528	3,365,395	6,262	1,172,520

Source: Annual Reports, Bureau of Land Management.

¹ Tabulated by fiscal years, July 1 to June 30.

In addition to the growing scarcity of easily irrigated desert land, two other factors contributed to the decrease in the rate of development of new land after 1920. First, farm prices fell rapidly after a high point in 1919 to a low in the early 1930's. Second, in 1935 all public lands were withdrawn from settlement until they were classified and opened under the provisions of the Taylor Grazing Act. The land-classification provisions of this act gave the Bureau of Land Management greater control over entries than was possible under the provisions of the Desert Land Act alone. Applications on public land are allowed only on land that is classified and opened upon application or on the Bureau's own motion as more suitable for agricultural crops than for native forage. In practice, public lands are classified and opened for desert land entry only upon the filing of applications, which are treated by the Bureau also as petitions to have the land classified.

Two developments after World War II increased interest in filing on public desert land for irrigation. First, farm commodity prices were favorable for several years. Second, improved methods of drilling wells, better pumps, and new sources of relatively cheap power and more widespread distribution of power made pumping of ground water for irrigation more practical. The com-

bination of the two made development of desert land an attractive business venture.

The number of entries under the Desert Land Act increased from 1946 to 1954, when more entries were filed than in any other year since 1914. About 90 percent of these entries were based on use of underground water for irrigation. By 1957, 508,230 acres of land in Idaho was irrigated by pumping ground water. This acreage will increase at least until 1958, as 1954 was the recent high year for the number of new or original entries and 4 years are allowed for final proof unless the entryman files to suspend development under recent acts of Congress.

Table 2.—Permits to appropriate underground water issued in Idaho, 1907-56.

Period	All applicants		Desert Land Act applicant	
	Number of permits	Acres	Number of permits	Acres
1907-10	9	871	-----	-----
1911-20	38	10,950	-----	-----
1921-30	53	35,243	-----	-----
1931-40	153	95,297	-----	-----
1941-45	103	28,243	-----	-----
1946	83	18,021	-----	-----
1947	121	21,202	1	320
1948	424	194,985	16	3,587
1949-50	675	188,703	160	38,675
1951-52	905	245,026	491	137,294
1953-54	1,515	361,684	555	170,112
1955-56	999	321,100	309	38,024
Total	5,078	1,521,324	1,532	433,012

Source: Biennial reports, Idaho State Department of Reclamation.

In Idaho, underground water may be appropriated for irrigation by application to the State Engineer for a permit. Permits are issued to all applicants who fill out the proper forms and pay the required fee. The largest increase in number of permits to appropriate ground water occurred first on private land in 1948 (Table 2). By 1952, more than half of the permits were filed on lands that come under the provisions of the Desert Land Act. After 1954, the number of ground water permits decreased. The less favorable farm outlook of the last few years and perhaps the growing scarcity of land suitable for development contributed to a decline in number of applications for permits to appropriate underground water for irrigation.

An applicant for a desert land entry must have water or a permit from the State to appropriate water, or he must state that he intends to use the common law method of appropriation, before his entry can be allowed. (In Idaho, the common law practice of

appropriating water may be used but the statutory practice is usually followed.) But a State water permit or appropriation is not the only requirement. Less than two in three applicants who got a water permit on public lands from the State were allowed to make entry by the Bureau of Land Management from 1948 to 1956. This was due to faulty application, classification of land as unfavorable for development, or other reasons.

Furthermore, a State permit to use ground water is not a guarantee that the land involved is suitable for irrigation nor does it assure that water will be found. Neither do the provisions of the Desert Land Act in any way guarantee that the land allowed for settlement will turn into a successful farm. The land-classification provisions of the Taylor-Grazing Act allows the Bureau of Land Management discretion to reject applications on land deemed unsuitable for irrigation farming or on land more suitable for other uses, even though it might be irrigated profitably.

The number of desert land applicants for water permits declined in 1955-57.⁶ Idaho gave way to Nevada as the most active state in 1957 under the Desert Land Act program. In Idaho in that year, 710 unperfected entries consisting of nearly 185,000 acres were pending.⁷ This number accounted for 32 percent of the total of unperfected land entries in the United States. In 1957, there were 84 new entries and 84 entries went to satisfactory "final proof." In addition, 232 applications were denied when the land applied for was found to be unsuitable for disposition. Remaining in Idaho are about 2,000,000 acres of public land that could be classified as more valuable for irrigation when and if evidence of adequate water supplies is found.

Problems in the Operation of the Desert Land Act

The Desert Land Act was passed when little was known concerning the requirements for successful farming in the West. Many problems were to become apparent as settlers took up land under the act. Some of these problems are no longer important but many are still there. They are of three types: (1) The Government's problems in administering the act; (2) the applicant's problems in dealing with the Government; (3) the physical and financial problems of developing and operating the land.

From the standpoint of the Government, the main problems are:

- (1) In many instances, applicants do not inspect the land carefully or plan adequately for development of land and water. This leads to ill-advised applications, which create added costs for both applicant and the government and may contribute to subsequent failure and disappointment for the applicant.
- (2) Inadequate information as to quality of soil and quantity, quality, and availability of water, makes classification of

⁶ Biennial Reports, Idaho State Department of Reclamation.

⁷ Report of the Director, Bureau of Land Management, Washington 25, D.C., (1957).

land and rational decisions on applications difficult in many instances.

- (3) Applications for desert land entry sometimes precipitate conflicts in land use. Desert entries in areas selected for range improvements or range experimental sites, important game range areas, or others, require careful scrutiny before classifications for agricultural use can be made.
- (4) Occasionally, applicants have poorly prepared plans for water development which costs the government excessive time in inspection, supervision, and reconsideration of the application.

Some of the problems that the applicants for entry under the Desert Land Act have with the Government are as follows:

- (1) The problem mentioned most frequently is the amount of time it takes to get action.
- (2) The regulations are complicated and hard for laymen to understand.
- (3) Some applicants believe that the public agencies concerned could provide more information as to the nature of ground water supplies.
- (4) In any area, there are those who believe that the Government should be more liberal in classifying lands applied for and others who believe that no more entries should be allowed because of the limited water supply.
- (5) The way in which reserved public lands were opened for filing of applications was claimed to be unfair by several entrymen. They did not know when a particular area would be opened and could not be at the land office in time to file on land that was especially desirable to them.⁸
- (6) Crop acreage restrictions prevent entrymen from growing the quantities of beets and wheat that would be most profitable.

Problems of a third type relate to the task of developing the land and water resources. Some of these problems are:

- (1) Large amounts of money or other assets are needed to develop successful farms on desert land.
- (2) It is sometimes difficult and expensive to locate underground water.
- (3) As title rests with the Government until the land is developed, entrymen cannot use the land as security for loans for development. Lenders usually require the real estate on which they make loans to be mortgaged as security for the loan.

⁸ Special attention is given later in this report to the question of opening withdrawn areas for entry.

- (4) Expenses are usually higher and income is usually lower than expected during development years. It often takes longer and cost more to develop the farm than expected.
- (5) Sometimes there is a delay in getting electric power to the land.
- (6) New land is often of low fertility and has little humus. Development of fertility to a point at which profitable yields can be obtained is slow and expensive.
- (7) In new areas such community services as schools, roads, telephones, medical services and nearby shopping areas may be lacking.

Method Of Procedure

The study on which this report is based was initiated to learn more about land settlement and development under the Desert Land Act in Idaho. Information as to costs of development and earning power after development would not reveal all the information needed, nor would an examination of the official records. For example, appendix Table 1 shows that from 1950 to 1955 only 15 percent of the applicants for desert land progressed to the point of patenting their land. The number of patented entries is not a true measure of successful development as the applicant has 4 years and possibly longer in hardship cases after the allowance of his entry to "prove up". As soon as the land is patented, it is put on the tax rolls, so there is an advantage to the entryman to wait as long as the law allows.

The people involved in desert land entry were interviewed to learn their experiences in getting and developing land. Three areas



Figure 2.—Plotting a contour map is the first step in developing desert land. This southern Idaho farm was planned with the assistance of the Soil Conservation District.

were selected for study: (1) Hazelton in south-central Idaho, where development has been successful; (2) Howe, 100 miles to the northeast, where development has been successful for only a few; and (3) Raft River, southeast of Burley, where some successes and some failures have occurred. Each of these areas had different resources and problems.

A list of the desert land applicants in each area was obtained from the Bureau of Land Management. The entrymen were listed according to the status of their entries. About half of the applicants in each area were interviewed. Table 3 shows the total number of cases by areas and the number of interviews in each category.

Table 3.—Number of desert land applications and sample taken in leading areas, by status of application, Idaho, 1950-56.

Status of Application	Hazelton		Howe		Raft River	
	Total Cases	Sample Cases	Total Cases	Sample Cases	Total Cases	Sample Cases
	Number	Number	Number	Number	Number	Number
Active Cases:						
Filed (not allowed)	---	---	5	1	53	9
Allowed entries held by—						
Original applicant	9	4	22	14	23	14
Assignee	5	1	2	---	---	---
Closed Cases:						
Patented by—						
Original entryman	17	14	2	2	12	6
Assignee	6	3	---	---	---	---
Other ¹	15	6	25	11	37	16
Total	52	28	56	28	125	45

¹ Includes all applications filed and subsequently withdrawn or canceled, both before and after allowance of entry.

A total of 233 applications for desert entry were made in the three areas from 1950 through 1956. Of these, 119 were still active at the end of 1956. These applicants could still prove up their entries. The active cases in the "filed (not allowed)" category were awaiting official action as to whether or not the application would be allowed.

Applications were "closed" by three methods. Thirty-seven successful applicants completed their proof of development and received a patent on the land. Forty-seven applications were filed and then closed by the Bureau of Land Management. These applicants were not permitted to start development. The rest of the applications were closed because the applicants were unable, or did not wish, to complete the requirements necessary to patent land.

The study reported here was designed to appraise the operation of the Desert Land Act. Many of the entries studied were still in the developmental stage. The eventual success or failure of some

of them can only be predicted on the basis of experience up to the time the study was made. However, it was possible to select many instances that illustrated reasons for either successful or unsuccessful land development.

Experience of Applicants

Hazelton Area Is Highly Successful

The Hazelton-Butte area lies just north of the Snake River between Twin Falls and Burley. This land could not be irrigated from the system of canals in the area because of its height above the surrounding land and its gently rolling terrain. The land is a deep, well-drained loam, suited to irrigation. The average frost-free season is 128 days. Both early and late crops are damaged occasionally by frost.

Very few applications for desert land were filed in the Hazelton area before 1949. In that year, 12 were filed. Insufficient evidence of adequacy of water supplies was presented to satisfy the Bureau of Land Management and these 12 applications were "closed", or rejected. At the same time six applications were not rejected. Apparently, the Bureau of Land Management believed that in these six instances, water supplies might be developed. The first application was "allowed" in 1950.



Figure 3.—Brush is windrowed for burning after it was cut with a blade.

There was no rush to file late in 1950, when the Bureau of Land Management allowed these early applications based on wells and pump irrigation. Still, about half the land in the area was filed on in 1951. Many people were doubtful as to the quantity of water available and the cost of getting and using it. By 1953, experience had indicated that pumping ground water at Hazelton was economically feasible. All of the land in the area suitable for

farming was filed on and later developed. Despite this development and use of water, the pumping level has remained constant throughout the 5-month pumping season at a depth of about 360 feet.

The primary problem encountered by entrymen in the Hazelton area was obtaining adequate funds for development. In 11 instances the applications were allowed but the entrymen could not obtain enough money or credit to complete the development. These people assigned their entries to others. The assignees with more adequate capital were able to complete the development successfully. The assigners recovered their investments and made some profit.

One applicant for desert land in the Hazelton area could find only an 80-acre tract on which to file. A well would have cost about \$200 an acre. He decided that it would not pay to invest in a well for only 80 acres; therefore, he assigned his entry to a farmer whose land adjoined the 80-acre tract.



Figure 4.—Cleared land before any leveling is done. Most of the desert land is very level.

Most of the applicants were farmers who lived in the area. Others were engaged in businesses related to agriculture in the area. These applicants knew the quality of soil, climate, crop-production possibilities, and costs of production in the area. The

few who had no personal knowledge of the area usually were advised by people who were familiar with it.

In the Hazelton area, the average size of each entry was 263 irrigated acres. There were two multiple units (more than one entry operated as a single farm) so that the average size of operating farm was 293 irrigated acres. This was twice the size of the other irrigated farms in the same county.

About half of the entries were farmed by the individuals who made the entries. Others were operated by tenants on 50-50 share leases. Only one farmer entryman leased his desert-land entry to another to farm. Similarly, only one nonfarmer entryman farmed his desert-land entry; he was a well driller and continued his drilling business along with farming.

No Paradise At Howe

The Howe area is a level valley, which fans out at the southeastern end of Idaho's highest chain of mountains. To the southwest is a volcanic wasteland known as the "Craters of the Moon." To the south and east, the Atomic Energy Commission has a large reservation.

The Howe area contains 30 square miles of very level land. The topsoil is a sandy loam washed down from the surrounding mountains. It is of good quality and is a few inches to many feet deep. The topsoil is underlain with gravel and the bedrock is lava, as it is in most of southern Idaho.

The climate is severe. Frost-free days average only 97 and frosts may occur in any month of the year. The average July

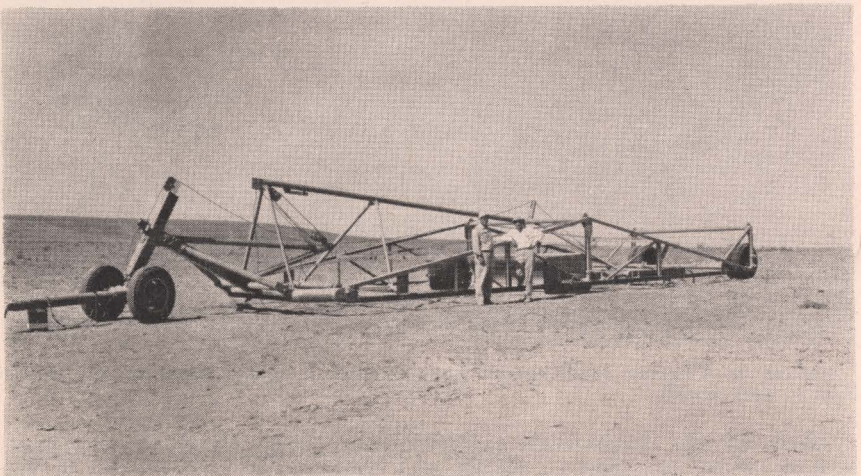


Figure 5.—Large land planes are used in the Hazelton area for heavy leveling.



Figure 6.—A crop of beans on high quality desert land the first year after development.

temperature is 66 degrees. Only hay, grain, and livestock are raised.

Parts of the Howe area were irrigated as early as 1890. Water was taken from the Little Lost river, which flows from the mountains and sinks underground within the area. The supply of stream water is not adequate for the number of water rights. Only the oldest rights have adequate supplies.

Some of the land in the area was alienated under the Carey Act of 1894, but part of it was not irrigated because of lack of water. Several tracts were filed on under the Desert Land Act after 1950. They were returned later to the original applicants under the Carey Act if adequate water supplies could be obtained.⁸ This was sometimes accomplished by transferring older water rights to the new land or by drilling wells for water.

Most of the fillings in the Howe area were made in the summer of 1952, more than half of them by people already in the area. A private land company acted to assist in preparing most of the

⁸ The land at Howe was withdrawn from the public domain for disposal under the Carey Act. When the provisions of the act were not met, the land was restored to the United States. It was discovered that the State of Idaho had issued final certificates on some of the restored land. Individuals holding these certificates were allowed a preference right to file and later obtain patent to the land. These entries are not typical of desert land filings. In addition, some Carey Act land was reconveyed back to the State of Idaho by special legislation.

filings of individuals who were not farmers in the area. After filing, these applicants investigated the costs of development and the possibility of obtaining a good well more thoroughly. Most of them decided that the costs and risks were too great and the land has not been developed. Only one person, other than those residing in the area, was able to develop a farm unit, and this was at a cost that appears to have been excessive.

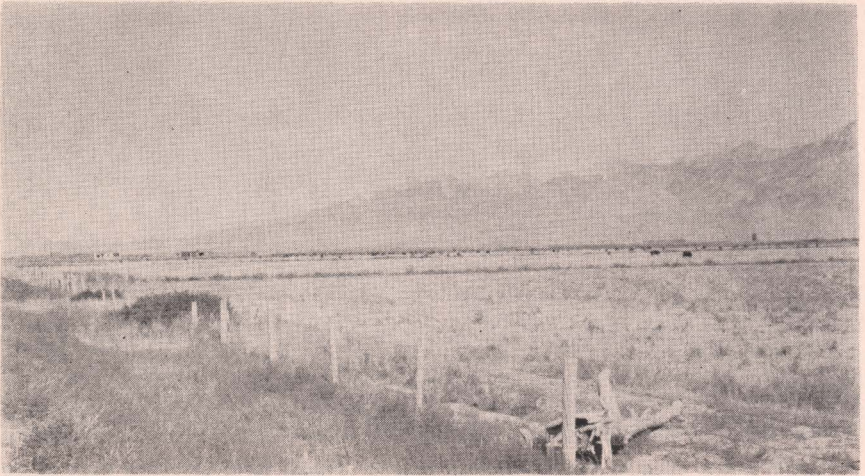


Figure 7.—Beef cattle are wintered at Howe on newly developed desert land.

The fact that a river can disappear underground in the area may explain why it is difficult to get a good well there. However, there are several good wells. There are also dry holes on adjoining land where entrymen failed to get enough water for irrigation. Only one of the eight farmers surveyed relied on wells for all of his water. Two others had wells to supplement surface water rights already owned on other land. The remote possibility of getting a good well caused many applicants to delay development of their land. Nearly a third of the applicants surveyed reported that they had not developed their allowed entry because they were afraid they could not obtain water.

Apparently local farmers were able to make good use of the land acquired under the Desert Land Act. They added the new land to their older established farms. Water rights already owned could be transferred from one tract of land to the other. In one instance, the entryman abandoned the same number of acres on his old farm as he acquired his new unit. He had no excess of water but the new land was better than the old. The local farmers developed the land with their own equipment as time was available. The land had very little natural vegetation and no clearing was necessary. They merely plowed, worked up the ground, leveled, and then irrigated. Planting new ground differed little from pre-

paring established farmland for the next crop. What heavy leveling was necessary was done with farmer-owned dozers. Consequently, the costs of land preparation were very low.

Farmer entrymen took only the land they thought would make good cropland. The average size of each entry was 220 acres, with 132 acres cleared for irrigation. They planned to clear an additional 60 acres on the average. They owned an additional 223 acres of irrigated land. Several had permits to graze cattle or sheep on the national forest or grazing districts. The possibility of getting additional range permits to increase numbers of cattle and sheep in the area so that the additional feed grown on the new land can be utilized is limited. In contrast, range privileges were reduced, partly as a result of the expansion of the Atomic Energy Commission's land reservation into the spring range area. Additional livestock would have to be fed on irrigated pasture at the farm.

Development of additional land in the Howe area is limited by scarcity of irrigation water. Although only three irrigations are needed to raise hay or grain at Howe, a good head of water is necessary on the sandy soil. Often water from both a well and a ditch is turned into the same field, or two farmers may combine their flow of water to obtain an adequate head. Water is ample in spring but in fall both the wells and the river may be exhausted. Farmers with the newest water rights are often out of water before they complete their third irrigation.

The doubtful water supply, cold climate, sandy soil, and limited range in the Howe area combine to make development of new independent farm units almost impossible. The level land and scenic background of mountains made the area look desirable to newcomers who hoped to establish themselves on farms. Many rushed in, started land development, and failed.

Raft River Area Is Variable

The Raft River valley is about 40 miles long and 2 to 3 miles wide. The river heads at the Utah border and empties into the Snake River about 20 miles east of Burley. In an area as large as this, variations in soil, topography, water supply, and even climate, occur. The growing season averages 128 days and frost is often a problem. The sandy loam topsoil varies in depth from 2 inches to more than 10 feet. The soil is usually well-drained but in some parts alkali limits crop production. The usual products raised are hay, grain, potatoes, and livestock. Many farmer grew hay, clover, and grass to add fertility to their soil before trying intensive crops. Several entrymen tried grain crops the first year but had failures.

The average number of irrigable acres in each desert-land farm unit surveyed was 179. Three-fourths of the entrymen owned an average of 220 additional acres in the area. Two units were cleared

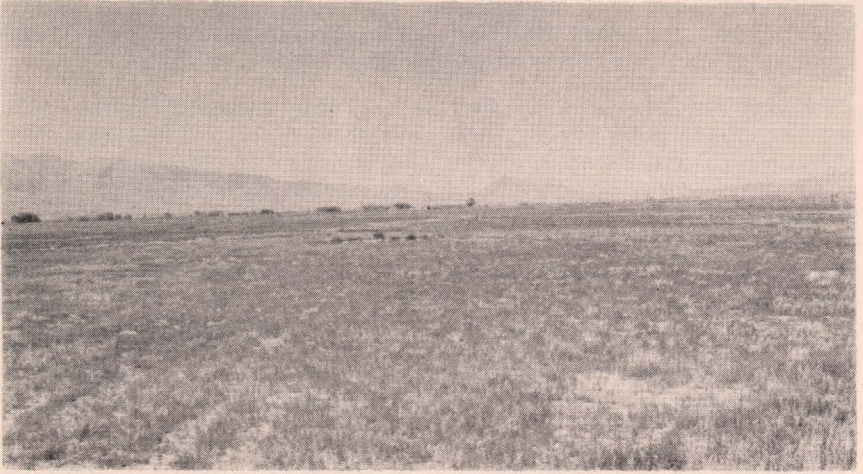


Figure 8.—Desert land at Howe developed for crops and abandoned because of lack of enough water for irrigation.

but not farmed because of lack of funds. Two other units were in grass and sweet clover. Two area farmer entrymen who had public range allotments had beef cows. No other continuous livestock programs had been established. There is no reason to expect additional public range allotments for new farmers in the area.

More land has been patented in the Raft River area than at Howe but not as much as at Hazelton. The water supply is an underground basin, and the number of acres that can be irrigated without exhausting the supply is not known. The water level has been drawn down by pumping faster than it is being replenished. Water, rather than acreage of irrigable land, appears to be the limiting factor to development of the area.

Appendix Table 1 shows two pertinent facts about the Raft River area. First, more applications were filed here than in any other Idaho area. Second, more filed applications still were not allowed at the end of 1955 than in all the rest of the State. The main reason why applications were not allowed was the doubtful water supply. Other reasons were the poor quality of soil and the existence of experimental projects in range forage development already on the land.

Only 40 percent of the entries had been allowed by the end of 1957. The Government was proceeding cautiously until more was known about the area. Furthermore, area cattlemen voiced the historic complaint against settlers encroaching on the rangeland. The Government still must decide whether the land is better suited to irrigation or range use.

The composition of the entries at Raft River differed from the compositions of those at Howe or Hazelton, where a majority of the units were developed by farmers. At Raft River, only 13 units surveyed were under development. Four of these were developed by farmers in the area; four were developed by well-drillers, and five by other businessmen. Twenty-nine entries for which the land was not developed were surveyed. Of these, 14 were in three groups, with each group developing a multiple unit jointly. Their plans were to develop large potato farms with a hired manager. Scarcity of funds, the risk of getting water, and the economic outlook for potatoes explained why they had not gone ahead with development.

Luck Is An Element Of Success

There is an element of chance in obtaining land under the Desert Land Act. A person must be in the right place at the right time to know that certain reserved lands are being opened to applications. However, veterans of World War II or Korea can participate in drawings. A person may file at any time on vacant unreserved land, if no one else has filed, but he cannot be certain that this land is suitable for development. He faces the risk of drilling a dry hole or of getting an inadequate supply of water to irrigate all of the irrigable land. The odds against his success are about 3-to-1 even if his application is allowed.

Despite the risks and difficulties, many people are anxious to develop desert land for the rewards are great to successful entrymen.

Development In The Three Areas Compared

The pattern of farm development and organization differed between the three areas studies, mainly because of the basic difference in the land and water resources. The Hazelton area had the best land and the most abundant water, but it was also the most expensive area to develop. With the expenditure of enough funds, good farm units were developed at Hazelton, whether the applicants were farmers or businessmen or whether they lived near or far from the area.

Compared with Hazelton, the wells at Howe were less than a third as deep and the land was more level. Therefore, costs of development were considerably less. However, the land and water resources were much poorer than at Hazelton. Possible income from land at Howe was comparatively low as only hay and grain could be grown. Consequently, only the local farmers were able to develop desert land units successfully because they were able to add them to farms they already owned. A desert land unit made a valuable addition to an existing farm, but the units were too small or too costly to develop to make profitable independent farms.

Development in the Raft River area had not progressed far enough for an estimation of what the final outcome will be. There

were several very good units along with others which had had repeated crop failures. Privately owned land was for sale in the area. However, enough applicants were interested in the area to file on all land they thought the government would allow for development.

The operation of the Desert Land Act did not promote the development of new independently owned and operated farm units in the three areas studied. Of the 35 Desert Land Act farm units surveyed, only 10 operators were entrymen who lived or intended to live on the new tract. The other units were farmed by tenants or by owners who lived elsewhere.

Capital Requirements

Costs of developing units differed considerably in the three study areas. These costs varied because of differences in depth and diameter of wells, lay of the land, number of acres developed, and number and kind of buildings required (Table 4). Costs of developing units within each area varied for the same reasons. Some farmers were able to reduce the cash costs of land development by doing some of the work themselves.

Table 4.—Average costs of developing desert land, selected areas of Idaho, 1956. ¹

Item	Hazelton 293 Acres	Howe 193 Acres	Raft River 179 Acres
	Dollars	Dollars	Dollars
Purchase charge	366.25	241.25	233.75
Fees	40.00	40.00	40.00
Pump, motor & well	17,580.00	6,975.00	8,237.00
Irrigation structures	1,720.00	0	100.00
Clearing	2,344.00	743.05	1,253.00
Leveling	5,376.55	1,320.12	2,917.70
Fences	0	240.00	240.00
Buildings	16,550.80	1,300.00	275.00
Total	43,976.80	10,859.42	13,285.45
Cost per acre	150.09	56.26	74.22

¹ Average number of acres in farms includes acreage already developed plus additional acreage planned for development for which water is available.

Wells Cost the Most

The first consideration in developing a unit is the well. Without adequate water, the best land in arid areas is of little value for farming.

Depth of water and the diameter of the well determines the size and cost of the pump and motor needed. Wells were larger and deeper at Hazelton than in the other two areas. (Table 5). They

Table 5.—Size and cost of wells, selected areas, Idaho, 1956.

Item	Hazelton	Howe	Raft River
Pump setting (depth in feet)	360	110	134
Motor used (horsepower)	200	50	60
Gallons per minute	1,890	1,224	1,620
Total cost of well (dollars)	17,580	6,975	8,237
Cost of well and pump per acre (dollars)	60.00	48.77	46.01

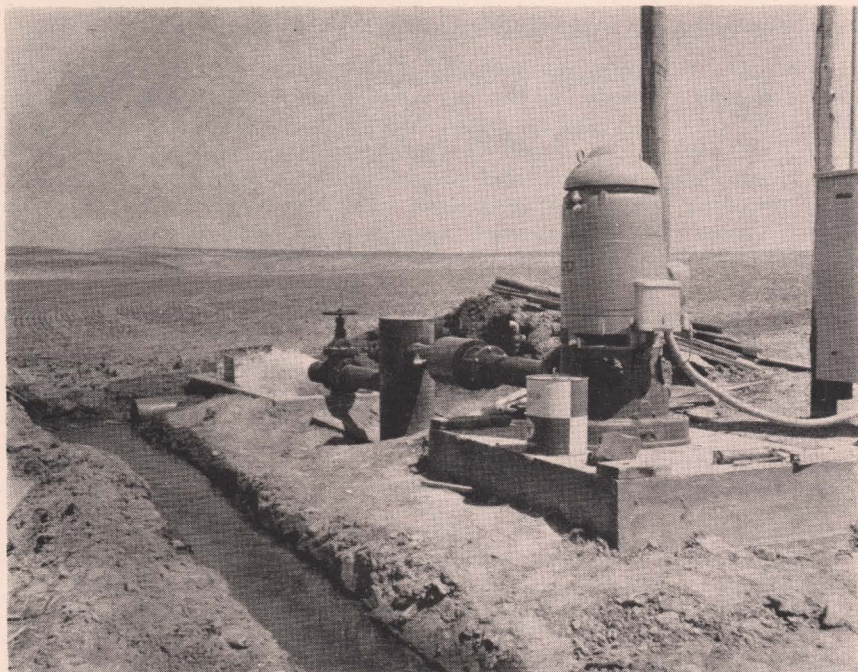


Figure 9.—This 75 h.p. motor lifts 675 gallons of water per minute 378 feet to irrigate 120 acres near Hazelton.

were the most costly for each farm unit and for each acre of land irrigated. In contrast to the Raft River area, wells in the Howe area were uniform in size and depth. Wells in the Raft River area varied from less than 200 to more than 400 feet in depth. Although the well might be 400 feet deep, the pumping level was not below 200 feet.

In the Howe area, only one farmer interviewed relied entirely on a well for water. Two others used wells to supplement their stream water rights. Chances of getting an adequate well were poor. The quantity of water available from each well was adequate to irrigate about 130 acres. The Hazelton wells supplied enough water for nearly 300 acres each. The Howe wells supplied water for only three irrigations each year; in the Hazelton area, the

wells were pumped continuously for 5 months. The Raft River area varied between these extremes.

The chances of getting a good well differed by areas. No water problems were reported in the Hazelton area. In contrast, 29 per cent of the applicants in the Howe area reported water problems. Again the Raft River area was between these extremes. Many applicants there were successful on the first attempt, others drilled several holes before success, and some were unable to find water.

Land Development And Building Costs Vary By Areas

The cost of developing land for irrigation in the arid regions of Idaho depends mainly on the lay of the land. The Howe and Raft River areas are flat and no heavy leveling was needed. Consequently, the costs were low (Table 6). On the rolling land of the Hazelton area, some heavy leveling and more elaborate irrigation structures were required. Sprinkler irrigation was necessary on the steeper slopes. Large land planes with rippers were used for heavy leveling. Farmers used their own floats for the final light leveling.

Table 6.—Costs per acre of desert land development, selected areas, Idaho 1956.¹

Item	Hazelton	Howe	Raft River
	Dollars	Dollars	Dollars
Purchase charge	1.25	1.25	1.25
Irrigation structures	5.87	0	.56
Clearing	8.00	3.85	7.00
Leveling	18.35	6.84	6.30
Total	33.47	11.94	15.11

¹ A charge of \$1.50 an hour was made for the labor contributed by the entryman and variable costs were charged for the uses of his equipment.

The cost of clearing the brush from the land was fairly uniform; it was done on a contract basis and large specialized equipment was used. Wheatland plows or special blades were used to cut the brush, which was then windrowed and burned. In the Howe area, the brush was light and the new land was plowed with a mold-board plow.

Entrymen reported very little cash expense for such irrigation structures as pipes, ditches, flumes, gates, bridges, culverts, and weirs. Ordinarily, a minimum of such structures was needed. The operator did his own ditching and installation of irrigation structures.

Cash costs of land development were low in all three areas. They were lowest in the Howe area because the entrymen were local farmers who did all of their own development with farm equipment that was already on hand. The low cost of land development in the study areas can be shown by comparison with similar land in the Columbia Basin of Washington. Costs of preparing

land in the Columbia Basin averaged between \$64 and \$104 per acre, depending upon the type of land.⁹

Costs of buildings in the Hazelton area were much the highest of the three areas, as each unit was being developed as a separate farm. The larger farms had two houses, a machine shed, and one other small building. The cost of homes including the domestic water system ranged from \$6,000 to \$15,000. In the Howe area, few additional buildings were necessary as the new land was added to established farms. The structures were sufficient for the whole farm. The Raft River area will have more buildings as development matures.

As no livestock was grazed in the Hazelton area, there were no fences. Fences were needed in the other two areas where livestock were an important part of each farm. Three-or-four strand barbed wire fences were built.

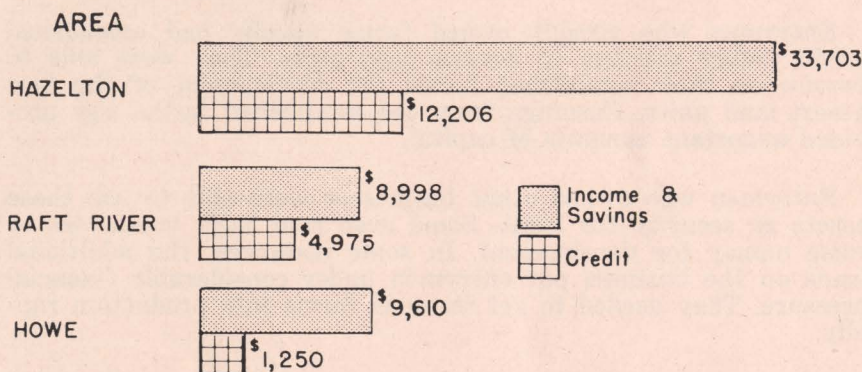


Figure 10.—Source and amount of capital used per farm for farm development under the Desert Land Act in three areas of Idaho, 1956.

Amount of Capital Needed

Total costs of developing desert-land entries ranged from \$62,950 for the most costly Hazelton farm to a low of \$805 for a 59-acre tract at Howe. Figure 10 shows the average amount of capital used in each area. In the Hazelton area, costs per acre ranged from \$125 to \$220. The whole range of costs in the Howe area fell below the lowest cost unit at Hazelton. The highest per acre cost at Howe was \$75. This unit was one of two in the area that was not added to an existing farm. Cost of developing units that were added to existing farms ranged from \$12 to \$15 per acre when the only costs incurred were for fees and preparation of the land for irrigation.

Total development costs per acre in the Raft River area ranged between the other two. The highest per acre cost found in the

⁹ Unpublished records of a survey by Washington State College.

survey was \$130. The lowest cost was on a small unit added to an existing farm where the water supply was adequate for both units. The only costs were fees and preparation of land for irrigation, which amounted to \$15 an acre.

Money Is Hard To Borrow

The title to desert land remains with the Government until the entryman has submitted final proof and gets a patent. Therefore, the land cannot be used as security for a land-improvement loan. The entryman must have other assets to use as security for any loan he may need.

A situation of this kind existed for homestead entries until Congress passed special legislation to permit the Farmers Home Administration to make land-improvement loans on these entries.

Entrymen who already owned farms usually had established credit before starting to develop new units. They were able to borrow on their established farms for development of the new desert land units. Earnings from the established farms also provided important amounts of capital.

Entrymen who owned other businesses were able to use these assets as security for loans. Some even sold their businesses to raise money for development. In some instances, the additional loans on the business put entrymen under considerable financial pressure. They needed to get the new farms into production rapidly.

In the Hazelton area, where the total cost of development was high, all entryment except one required additional credit for land development. The opposite situation existed in the low-capital-requirement area of Howe, where only one entryman used any credit for land-development costs. Seven of 12 entrymen in the Raft area used credit. Figure 10 shows the proportion of cash to credit used in the three areas.

Eleven of 20 entrymen who obtained credit for development of their desert land did so through short-term loans. Eight received bank loans and the other three got Production Credit Association loans. These loans were made on going farm operations and their repayment was based on the earnings of the farm already owned. The other nine entrymen who received loans obtained long-term loans secured by real estate. Five of these loans were made by private individuals, four by banks, and three by insurance companies. These were the only loan funds that could be repaid by the earnings from the land in which they were invested. Entrymen without outside security for loans could not obtain credit with which to develop desert land.

The Value of Desert Land for Farms

Information as to the cash costs of developing farms in three areas of Idaho under the Desert Land Act were obtained from a sample of farmers in each area. Were the farms worth the time and money required for their development? Entry men were asked to state the value of the desert land they had developed. This was an estimate only as only one completely developed unit had been sold. Hazelton farmers estimated that they could easily sell their land for \$400 an acre. Land at Howe was valued at \$100 to \$150 per acre. It appears that financially each area was worth developing. The costs of development were usually less than half the value of the land.

Organization And Promotion of Desert Land Farmer

Another and perhaps more accurate way of appraising the land is to capitalize the net income that could be expected from developed farms in each area. The examples that appear in this section were based on the type of farm operations found in the areas studied (Appendix Table 3). The size of the farm unit, acreages of crops grown, and yields were adjusted to a fully developed farm

Table 7.—Summary: Annual income and expenses for sample farms on desert land, Hazelton and Howe, Idaho, 1956.

	Hazelton		Howe	
	270-acre farm	355-acre farm	300-acre farm	
	Dollars	Dollars	Dollars	
INCOME:				
Crops	42,042	10,015	8,585	
Livestock	0	13,511	11,279	
Total	42,024	23,511	19,864	
EXPENSES:				
Machinery ¹	4,458	3,869	3,616	
Seed, fert., etc.	12,756	4,024	3,387	
Water	3,388	2,482	2,152	
Livestock		1,831	1,529	
Property taxes	1,080	355	300	
Miscellaneous ²	588	705	688	
Hired labor	1,851	1,605	1,110	
Cost of operating loan	600	528	450	
Total	24,721	15,399	13,232	
NET CASH INCOME	17,321	8,127	6,632	
INTEREST ON INVESTMENT	3,293	3,153 ³	2,844	
RETURN TO OPERATOR FOR LABOR AND MANAGEMENT	14,028	4,974	3,788	

¹ Includes gas, oil, repairs, depreciation, taxes and insurance.

² Includes electricity, telephone, and upkeep on buildings and fences.

³ Includes imputed interest on previously owned 223-acre farm and set of farm equipment, total value \$35,000.

basis. Two sample farms were selected for the Howe area, one to represent a situation in which the new desert land is added to an existing farm (132 acres of desert land added to existing farm of 223 acres) and a smaller unit (300 acres) to represent Desert Land unit of average size as it would be farmed alone (Table 7). An independently operated farm of 270 acres was selected as representative of the Hazelton area.

Experience with crops on desert land units at Raft River was limited (Appendix Table 3). Only one farmer had established a definite cropping system. Yields of hay varied from 1 to 3 tons. Yields of other crops were comparatively low and variable. Data obtained in this study were not sufficient to indicate cropping patterns and yields. Therefore, no sample farm budget is presented for the Raft area. However, the best land in the area produced nearly as well as land at Hazelton. Costs of development were lower at Raft; consequently, if development is profitable at Hazelton, the better land at Raft River can be developed profitably. The main consideration is whether enough water is available in the area to irrigate all of the land that could be farmed at a profit.

Summary Of Farm Budgets

The farm budgets presented in Table 7 show that the cash farm income in the Hazelton area is high.¹⁰ The average unit had a net cash income of \$17,321. This compares favorably with farm incomes in other areas of the United States. By comparison, the net cash income from a Corn Belt cash grain farm of 193 acres in 1956 was \$9,141.¹¹ At Hazelton, a farm of 150 acres would earn a net cash income of \$8,547, or \$56.98 per acre. This is nearly \$10 more net income per acre than was realized from the Corn Belt cash grain farm. The 270-acre Hazelton farm is even more profitable with a per acre net cash income of \$64.15.

Net cash income per acre at Howe was only a third as high as at Hazelton. The reasons for the lower income are the kinds of crops that are grown and the yields obtained. Feed crops only were grown at Howe and livestock were raised to utilize most of the feed grown. No range was available for use with desert-land farms. Therefore, the farming system selected for illustration included the wintering and fattening of calves.

Farm income at Howe was about the same as average farm incomes in the intermountain cattle-raising region. Investment costs were also similar

The return to the operator is the amount of money left from net cash income after subtracting a charge for interest on the amount of money invested in land development, livestock, buildings, and equipment (Appendix Table 4). This charge is the amount of income the farmer's money would earn if he had loaned it to some-

¹⁰ Details of the farm budgets are contained in the Appendix.

¹¹ Agricultural Research Service, *Farm Costs and Returns, 1956*, Agr. Information Bulletin 176, USDA, Washington, D.C., June 1957.

one else. All of the units except the small one at Howe returned substantial income to the operators.

Market Value Of Desert Land

The illustrative farm budgets indicated that the desert-land farms would give a reasonable return to the farm operators for their investment, labor, and management. Would desert land be a profitable investment for a person who did not intend to farm the land? To be attractive as an investment, the land should be worth as much as the development costs plus an extra return for the initiative and enterprise of the person who developed the land.

The cost of acquiring the raw desert land was \$1.25 an acre purchase charge plus fees approximating \$35 for each applicant. This sum was not intended to represent the actual value of the land. The market value of Hazelton farm land at the time of the study reported was \$400 an acre. Average development costs were \$150 an acre, leaving \$250, part of which was the value of the raw land. The rest was the amount required to pay the developer for his risk and managerial talents.

Development costs at Howe for an independently developed unit was about \$90 an acre. Good farm land was worth about \$150 on the market. Here the residual to the raw land and to the developer's talents was only \$60 an acre. The risk of getting an ample water supply was greater at Howe than at Hazelton but the payment for taking the risk was less.

Effects of the Operation of the Desert Land Act in Idaho

The chief result of the operation of the Desert Land Act in Idaho is the formation of new, large-scale, efficient, irrigated farms. They add to the total wealth of the State and increase the total value of farm production in the State. The new units average larger and are more profitable than the average farm in the older settled area of the State. New farms mean that additional public services are needed, but the new farms also provide new taxable land that will help to carry the burden of the increased costs of such services as roads and schools.

Areas Are Developed Rapidly

Apparently, many investors stand ready to undertake desert land entries, if development of an area appears to be profitable. After one or two pioneers have developed good wells, the news spreads rapidly and filings soon cover a whole area. Those who try to develop farms without enough funds are forced to step aside for others to complete the development.

When land is being developed, nearby towns enjoy a business boom. Entrymen hire labor and buy materials and equipment. Lending agencies are called upon to supply part of the funds needed by new entrymen. After development, the new farmers continue to buy supplies and equipment in the community. Farm products are sent into the towns for handling and processing. A higher level of business activity continues.

Competition With Established Enterprises

As most desert land areas are used as range for cattle and sheep, ranchers object to rangeland being put into farms. Farm entries break up the range. Water supplies may be taken away from range users; trails may be shut off. Ranchers feel that they have a long-established right to perpetual use of the rangelands.

Farmers who are already established on less efficient, less productive land are given stiff competition by entrymen. For example, some new land is suited to the growing of potatoes. Additional large acreages of potatoes will tie up some of the handling facilities, and the potatoes may come onto the market in quantities large enough to lower prices. In the long run, the consumers should reap the benefit of the lower priced potatoes.

New farms on desert land may conflict with those of established farmers who use pump irrigation by drawing down the water table. Older wells may have to be deepened to reach water. This occurs when the water supply is in a basin as it is at Raft River. In areas of this kind, too many wells eventually draw down the water supply faster than it can be replenished. As a result, water users do not have water enough to grow crops. Some Raft River farmers fear that the water basin has already been over-allocated.

Program Has Both Supporters And Adversaries

As is true of most programs, this one has both supporters and adversaries. In addition to farmers who are in direct competition with entrymen on desert land, some people believe that the government should not "give away" valuable public property. Usually, they are people who would like to have good farms themselves, but who could not take advantage of the act. Development of desert land requires a large amount of capital and a detailed knowledge of the program. Relatively few persons are able to meet these requirements.

Appendix

Details Of The Farm Budget

Appendix Table 5 shows the acreage, yields, and value of production from the farm units selected for budgeting. All income from the farms in the Hazelton area was from the sale of such crops as wheat, barley, alfalfa, beans, beets, clover, peas, and potatoes.

Farmers in the Howe area stated that soils, water supply, and climate made the area best suited to production of alfalfa hay, which was considered the most valuable crop. In a long-time rotation, grain would be grown 1 year in 6 to get the ground in condition for the next hay seeding.¹² The grain grown was assumed to be fed to beef cattle. Pasture was included that would supply 4 months of grazing for the number of cattle that could be fattened on the grain available. The surplus hay would be sold for cash. Appendix Table 6 presents the feeding program and the income obtained from the livestock program.

Details on the cost of equipment and water are found in Appendix Table 7 and 8. The prices for farm products sold and the cost of items used on the farm are given in Appendix Table 9.

Crop and labor requirements were estimated from farm studies in the Columbia Basin Area,¹³ and crop production studies in southern Idaho.¹⁴ The quantities of seed, fertilizer, sprays, and labor required were estimated to be similar for the same crops in the different areas because of similar soils and topography. The labor needed for each month was calculated for each farm unit. It was assumed that the operator would supply 270 hours a month. The rest was hired at a cost of \$1.50 per hour.

A charge of 6 percent was made on the average amount of annual operating credit used in each area. Money was borrowed for operating expenses at Hazelton and for the purchase of calves at Howe.

¹² A larger portion of grain than usual is grown on new ground as a means of leveling up the land before the hay is seeded.

¹³ Parrish, B. D., Fuhrman, W. U., and Franklin, E. R., "The Economic Situation of Irrigated Farms," Washington Agricultural Experiment Stations and Farm Economics Research Division, Agricultural Research Service Cooperating, Pullman, Washington, June 1957.

¹⁴ Jones, Elwood C., "The Relationship of Farm Size to Costs and Returns from Alternative Crop and Livestock Systems on Irrigated Potato Farms in the Upper Snake River Valley of Idaho," unpublished Master's thesis, University of Idaho, Moscow, Idaho, June 1958.

Walker, Donald L., "Alternative Methods of Harvesting Forages," unpublished Master's thesis, University of Idaho, Moscow, Idaho, June 1957.

Appendix Table 1.—Summary: Desert land applications by leading areas, Idaho, 1950-55.

Area	Applications	Allowed	Patents
	Number	Number	Number
Aberdeen - Springfield	85	85	14
North Jerome	9	9	0
Montevieu	40	38	1
Howe - Little Lost River	50	49	2
Hazelton	41	41	24
Bruneau - Little Valley	54	54	7
Sugar Loaf - Butte	34	26	6
Goose Creek	39	36	8
Raft River	100	45	7
Total	452	383	69

Source: Bureau of Land Management, Boise, Idaho.

Appendix Table 2.—Comparison of selected information about desert land entrymen, selecter areas, Idaho, 1950-55.

Item	Hazelton (28 cases)	Howe (28 cases)	Raft River (45 cases)
	Percent	Percent	Percent
Occupations of entrymen			
Farmer	61	61	45
Business	25	14	33
Well-driller	4		11
Other	10	25	11
Residence of entrymen			
Local area	86	54	56
More than 25 mi. from tract	14	46	44
Use of desert land			
Farmed	75	29	27
Being developed	4	21	18
Relinquished	3	36	35
Filed only ¹	18	14	20
Major problems of entrymen			
Lack of capital	36	14	51
Red tape remain undeveloped.	4	7	4
Water		29	9
Unit too small	3		2
Soil quality		32	9

¹ Some of these cases are closed, others are still awaiting government action, but all

Appendix Table 3.—Cropland use and yields on Desert Land Act farms, selected areas, Idaho, 1956.

Item	Hay	Feed grain	Wheat	Potatoes	Clover	Beans	Peas	Beets	Pasture
Hazelton									
Desert entry (12 units):									
Number reporting	6	8	8	9	5	10	9	3	-----
Average acreage ¹	30	21	27	37	19	65	53	17	-----
Production per acre	5.7 T	62 bu	60 bu	308 cwt	205 lb	27 cwt	33 cwt	225 T	-----
Howe									
Desert entry (8 units):									
Number reporting	6	8	2	-----	-----	-----	-----	-----	-----
Average acreage	58	63	11	-----	-----	-----	-----	-----	-----
Production per acre	4 T	40 bu	50 bu	-----	-----	-----	-----	-----	-----
Other Land 8 (units):									
Number reporting	6	5	5	-----	-----	-----	-----	4	-----
Average acreage	123	46	16	-----	-----	-----	-----	38	-----
Production per acre	3.4 T	58 bu	68 bu	-----	-----	-----	-----	5 AUM	-----
Raft River									
Desert entry (7 units):									
Number reporting	4	3	1	1	-----	-----	-----	-----	-----
Average acreage	86	31	45	34	-----	-----	-----	-----	-----
Production per acre	2.3 T	50 bu	45 bu	150 cwt	-----	-----	-----	-----	-----
Other land (6 units):									
Number reporting	5	3	4	3	-----	-----	-----	-----	-----
Average acreage	90	25	20	12	-----	-----	-----	-----	-----
Production per acre	3.25T	60 bu	70 bu	217 cwt	-----	-----	-----	-----	-----

¹ Average acreage for all units surveyed in each area.

Appendix Table 4.—Investment and interest charges for new farms, desert land areas, Idaho, 1955

Item	Hazelton		Howe	
	270-acre farm	355-acre farm	300-acre farm	
	Dollars	Dollars	Dollars	
Desert land investment:				
Land	27,426	7,426	16,878	
Buildings	16,550	0	9,800	
Corrals	0	107	223	
Machinery	118,238	0	12,194	
Cattle	0	15,525	12,960	
Interest charged: ¹				
Land and buildings	2,199	371	1,334	
Machinery	1,094	0	732	
Livestock	0	932	778	

¹ 5 percent charged on new investment in real estate and 6 percent on investment in livestock and equipment.

Appendix Table 5.—Production and value of crops sold on illustrative farms, desert land areas, Idaho, 1956.

HAZELTON AREA

Item	Feed Grain	Wheat	Hay	Potatoes	Beans	Peas
Acres	13.5	27	81	40.5	54	54
Yield	62 bu	62 bu	5.7 T	308 cwt	27 cwt	33 cwt
Production	837 bu	1,674 bu	461.7 T	12,474 cwt	1,458 cwt	1,782 cwt
Value (dollars)	837	2,511	8,311	14,345	8,019	8,019

HOWE AREA

	Feed Grain	Wheat	Hay	Pasture
Budget #1				
Acres	35	25	203	92
Yield	24 cwt	31.2 cwt	3.6 T	5 AUM
Production	840 cwt	780 cwt	731 T	460 AUM
Amount fed	840 cwt	770 cwt	175 T	460 AUM
Sold	0	10 cwt	555 T	0
Value (dollars)	-----	25	9,990	-----
Budget #2				
Acres	29	21	173	77
Production	696 cwt	655 cwt	623 T	385 AUM
Amount fed	696 cwt	648 cwt	147 T	385 AUM
Sold	0	7 cwt	476 T	0
Value (dollars)	-----	17	8,568	-----

Appendix Table 6.—Feed requirements, cost and value of beef calves raised, Howe area, Idaho, 1956. ¹

Item	355-acre farm		300-acre farm
	Per head	115 Head	96 Head
Feed Required:			
Hay for wintering—ton	1.26 T	114.9	121
Pasture 4 months—acres	.8	92	77
Hay for fattening—ton	.27	31.1	26
Grain for fattening—cwt.	14	1,610	1,344
Gross income—dollars	193.99	22,308	18,623
Cost of calves—dollars	74.50	8,797	7,344
Net return—dollars	117.49	13,511	11,279

¹ The beef program consisted of buying calves off the range in the fall for \$18 per hundred pounds. The average weight was 425 pounds. The calves were wintered 180 days and gained one pound per day. They were then pastured on irrigated pasture for 4 months and gained an average of 1.8 pounds a day. They were fattened on 7 pounds of hay and 17.5 pounds of grain a day for 80 days. The gains averaged 2.5 pounds per day. The finished cattle weighed 1,021 pounds and sold for \$19 per hundred pounds.

Cattle expenses per head were calculated as follows:

	Dollars
Depreciation and repairs on corrals	0.423
Salt	0.40
Grinding and storage of grain	5.60
Tax	1.00
Electricity	2.50
Vet and medicine	2.00
Bedding	4.00

Appendix Table 9.—Prices received for major products and paid for major items: Data used in illustrative farm budgets, Idaho, 1956¹

Item	Unit	Price	Item	Unit	Price
		Dollars			Dollars
Barley	Bu	1.00	Seed:		
Wheat	Bu	1.50	Pasture	Acre	5.68
Hay	Ton	18.00	Hay	Acre	5.70
Potatoes	Cwt ²	1.15	Peas	Lb	.08
Beans	Cwt	5.50	Wheat	Lb	.04
Peas	Cwt	4.50	Barley	Lb	.03
Beef	Cwt	19.00	Potatoes	Acre	50.00
Calves	Cwt	18.00	Beans	Lb	.12
			Nitrogen	Cwt	13.65
			P ² O ⁵	Cwt	4.86
			Feed grinding		
			and mixing	Cwt	.40
			Labor	Hr	1.50
			Custom work:		
			Combining grain	Acre	6.00
			Harvest potatoes	Cwt	.25
			Spraying	Acre	4.00
			Potato cellar	Cwt	.15

¹ These prices and costs were based on the Department of Agriculture's longtime projections, U.S. Department of Agriculture, "Agricultural Price and Cost Projections," Washington, D.C., 1957. The relationship of the prices to costs is about the same as existed in the years 1953-1955.

² Net price after deducting storage costs.

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