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# Investment Great, But Returns Are Greater

## Economics Give Proof Of Point

In a land where rainfall is plentiful and vegetation lush, the economics of irrigation is hard to understand.

Rain is free but dams, canals, laterals and ditches cost money. It takes a lot of man-hours to keep an irrigation system running smoothly and money for wages is like a leak in a canal—the water's moving but there is no increase in production.

**Lot Of Fuss**  
All of which seems like a lot of fuss and feathers to people with umbrellas. Even when they're convinced the reclaimed land is needed to feed the growing population, they still feel that irrigation is an expensive way to farm.

The economic facts, however, do not bear this out. While the cost of bringing water to arid land, and keeping it there, is high, the economic returns go off into the wide blue yonder. Take Yakima Valley for example. Since 1907 irrigation has cost approximately \$100 millions but the cumulative crop returns for 56 years reaches \$2.12 billions.

**High Yield**  
This is a return of between \$21 and \$22 for every dollar invested in irrigation.

The figure, though, does not include the returns from livestock. Nor does it include the incomes of service industries, industries which would not be in the Yakima Valley today if river water had not been made to replace deficient rain. Without taking much of a flight into fantasy, the figures could be \$25 for every \$1 invested — and even more.

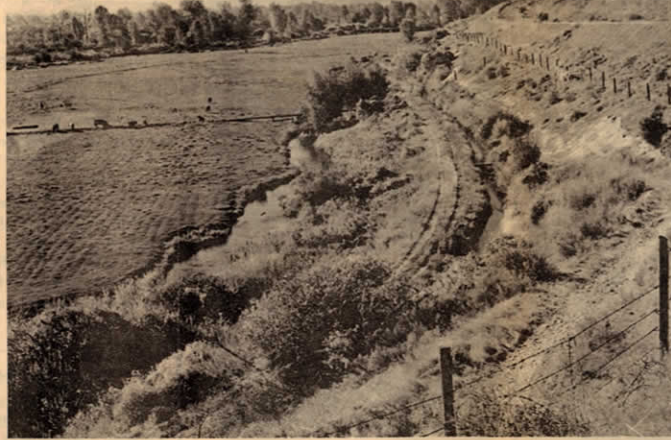
**Needle In Haystack**  
To find the exact figure on the cost of irrigation is something like looking for a needle in a haystack because some of the 56-year-old records are scattered far and wide. And, in some instances, there are no records whatsoever.

The Bureau of Reclamation, though, has complete construction cost figures on its share of irrigation in the Yakima Valley and since its total participation constitutes more than 50 per cent of the acreage and virtually 100 per cent of the water supply, a fairly accurate picture may be drawn.

**Building Costs**  
Total construction costs on the Yakima Project — this includes dams, canals, laterals, drainage ditches, and power plants on the Sunnyside, Tieton, Kittitas, Roza, Kennewick, and Storage Divisions — amount to \$2,957,856.82.

Construction costs by divisions and their acreages are: Tieton \$3,333,688.86, 27,271; Sunnyside \$4,828,780.79, 103,570; Kittitas \$2,002,632.54, 57,309; Roza \$18,181,218.32, 72,511; Roza power \$4,462,682.70, none; Kennewick \$10,270,728.05, 19,171; Kennewick power \$2,382,590.71, none; and Storage \$10,065,633.03, none.

**Per Acre Costs**  
Per acre construction costs on the Yakima Project varied through the years, depending on the time the work was done and on the type of construction needed. For example, the Sunnyside Division and the Tieton Division went in at approximately the same time but the former averaged \$40 an acre while the latter cost \$125 an acre. This is quite a spread but the cost of the Tieton project was boosted by the construction of expensive mountain tunnel-



**BIG DIFFERENCE**—There's a big difference between irrigated and unirrigated land. On one side there are crops and income; on the other side are sagebrush and desert. This pic-

ing, the Sunnyside Division has no such problems.

The Kittitas Division was constructed during the 1920's and because it, too, has tunnels and concrete flumes that wind around mountains, it cost an average of \$150 an acre.

**Recent Times**  
The Roza was built in recent times and included not only tunneling but the construction of a diversion dam and pumping plants. Its costs, not including the power project, amounted to roughly \$25 an acre.

By the time the Kennewick Division was built, costs had skyrocketed but it, too, had some expensive problems to solve before water could be delivered. Its average per acre cost was \$325.

Construction costs on the huge Wapato Project for the Yakima Indian Reservation and for the smaller irrigation districts are not so easy to pinpoint. The Wapato project was built over a period of years and money appropriated for it sometimes was mixed with other funds for reservation betterment.

Most of the smaller projects were installed years ago — sometimes on a piecemeal basis — and some of the early records cannot be located. Many of the projects were built at the time of or prior to the Sunnyside and Tieton Divisions and, in some instances, farmers contributed their labor and their teams to the work to cut costs.

These things make it difficult to assess accurate construction costs. However, if an arbitrary figure of \$50 an acre is assigned to the work, the cost of these smaller projects, total area of which is around 50,000 acres, probably would not exceed \$2 millions.

The Wapato Project is another matter. It was built over a longer period of time and rising costs would have had an effect upon its per acre costs. On the other hand, the project does not include any expensive tunneling or fluming. But, the project is vast, containing 136,

to illustrate the marked contrast, was taken south of Yakima near the Rest Haven Road. On one side of the ditch is irrigation and crops — on the other side desert.

274.24; and movable equipment \$13,295.67.

Of the total amount, \$1,322,

216.45 was fixed by contract more than 50 years ago between the federal government and the Sunnyside Valley, Tieton, Cascade and Union Gap Irrigation District, Yakima City, and 15 small districts and individuals.

The balance, \$8,747,465.78, is being paid on a prorata basis by the Prosser, Snipes Mountain, Grandview, Zillah, Outlook, Granger, Tieton (supplemental), Wapato, Kittitas, Roza, Kennewick, Yakima Valley Canal Co., Naches - Selah, Broadway, West Side, Moses, Terrace Heights, and Selah-Moxee Irrigation Districts. Of this amount, nearly one half has been repaid.

Construction costs, then, are only a part of the total cost picture. Through the years each of the districts has had to be operated and maintained.

These costs are even more difficult to come by than the figures on construction costs. The Bureau of Reclamation, however, does have some operation and maintenance figures on the Sunnyside, Tieton, Kittitas, Roza and Kennewick Divisions and from these figures a fairly accurate picture of the entire area may be obtained.

**Operation Costs**  
In the five-year period from 1958 through 1962 the operation and maintenance costs in the five divisions ran approximately \$1.5 millions a year.

Projecting these costs from 1907 through 1963, and taking into consideration that the area irrigated has been continually enlarged and that costs have risen sharply since World War

costs, provides the overall \$100 millions believed to be the cost of irrigation.

### More Accurate

Figures on the income produced by irrigation in the Yakima Valley are considerably more accurate than the figures on construction costs and on operation and maintenance. About the only thing lacking in the \$2.12 billions are income figures from very few of the smaller districts.

Back in 1907 there were a number of small districts in operation but their combined acreage was not large. In that year, however, the Sunnyside Division began to produce. With 40,000 acres under water, the income was reported at \$2 millions.

Three years later 1,605 acres on the Tieton Division came onto the line and produced \$41,100 in income. Meanwhile, though, acreage was up on the Sunnyside Division and the total income reported amounted to \$3,367,300.

### Projects Listed

By 1918 the Wapato Project reported it had 61,000 acres under water and estimated its income from crops at \$6 millions. The Tieton, with 38,400 acres, was in full production and reported crop values amounting to \$1,916,189. Sunnyside, with 70,600 acres irrigated, reported crops valued at \$7,213,292. Total values that year exceeded \$15 millions.

The first report from Kittitas was in 1920 when 10,000 acres produced \$348,485. Tieton, with 27,000 acres, produced \$3,104,573; Wapato with 83,000 acres, produced \$4,100,231, and Sunnyside, with 70,500 acres, produced \$4,638,520. Total values that year amounted to more than \$12 millions. There were depression years, though, and in-

come dropped even though acreage was increased.

The Kennewick was on the line in 1924 with 2,158 acres producing \$145,931. Kittitas then had 32,000 acres producing \$961,522; Tieton 26,000 acres producing \$2,913,150; Wapato 94,000 acres producing \$3,567,146, and Sunnyside 80,000 acres producing \$5,334,665. Total income that year was nearly \$11 millions.

### Slow Start

The Roza's beginning was slow and in 1941 only 1,861 acres were under water. They produced crops valued at \$239,417.

Kennewick then was up to 3,628 acres producing \$369,832, Kittitas, with 38,500 acres, produced \$1,823,313; Tieton, with 24,500 acres, produced \$6,884,978; Wapato, with 108,500 acres, produced \$7,633,391, and Sunnyside, with 84,000 acres, produced \$5,183,446. Total values that year amounted to \$21.5 millions.

It was in 1958 that the Kennewick was enlarged. In that year its 7,000 acres produced \$855,435 while Kittitas produced \$2,107,551 on 55,000 acres, Roza \$14,178,419 on 67,000 acres, Tieton \$13,886,688 on 24,000 acres, Wapato \$22,234,627 on 129,000 acres, and Sunnyside \$16,025,533 on 80,000 acres. Total income that year was \$69 million.

Last year Kennewick produced \$1,385,054 on 12,000 acres,

Kittitas \$2,655,588 on 55,000 acres, Roza \$18,112,344 on 67,000 acres, Tieton \$11,451,950 on 23,000 acres, Wapato \$23,443,709 on 131,000 acres, and Sunnyside \$18,862,632 on 83,000 acres.

88 Millions

Total income from crops for the entire area last year was nearly \$88 millions. The cumulative income for the area for the 56 years of irrigation amounts to \$2,115,827,013. This figure includes income from most of the small districts, but does not include income from livestock or from service industries that have been built in the Valley as a result of irrigation.

Looking at the picture from another angle, the \$2,850 acres in the Sunnyside Division have produced \$486,172,500 since 1907; the 23,373 acres in the Tieton Division have produced \$389,090,000 in 53 years of operation; the 131,243 acres on the Wapato Project have produced \$540,527,542 in 45 years; the 54,887 acres on the Kittitas Division have produced \$74,619,892 in 32 years, the 11,816 acres in the Kennewick Division have produced \$20,709,712 in 30 years, and the 67,308 acres on the Roza division have produced \$231,656,164 in its 23 years of life.

If the man with the umbrella still isn't convinced that irrigation is a economically productive as rainfall, there's still another argument, a real clincher. In an irrigated area, a person doesn't need an umbrella.