

It requires but very little thinking, after one has seen the natural resources surrounding Bend, to see how and why Bend will become one of the most prominent manufacturing cities in the Northwest; neither does it require much thinking, after one has seen and studied the map of Bend, to see how and why

# RIVERSIDE ADDITION

must and will become the "factory district" of Bend. Already it is the most practicable and desirable, owing to its advantages which are necessary to factories of any kind.

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### USING WATER TO BEST ADVANTAGE

#### FACTORS AFFECTING IRRIGATION

Prof. Powers Points Out the Way to Obtain the Most Economical Returns from Watering Crops in Central Oregon.

By W. L. POWERS,  
(Supt. Demonstration Farms.)

The duty or service of water is an expression of the amount of water used to irrigate a given area of crop to maturity. It is important to know how much water is needed per acre and when needed to secure the most economical returns per unit of water used. There are two common ways of expressing the duty of water: (1) The number of acres a second foot will irrigate during a growing season; (2) The number of acre inches required to irrigate an acre

of crops to maturity. The latter of these is the most absolute basis and it is easily understood by the farmer. The duty of water is increasing as water becomes more valuable and less plentiful.

Factors affecting the duty of water:

(1) The duty of water varies for the different crops. With the rainfall the past season, which is three to four inches above normal, the most economical production of alfalfa was secured on the Demonstration Farm with about twenty inches of water. The most economical use with clover was about twenty-four inches, on potatoes about four inches and on barley five inches.

(2) The character of soil and subsoil. The finer and deeper the soil is, the larger its capacity to store water and the less frequency of irrigation is required; while the sandy soil requires more frequent irrigation and is liable to suffer loss from percolation below the reach of roots.

(3) The amount and distribution of rainfall modifies the irrigation requirement and the distribution is most important. Irrigation should simply supplement rainfall. It is the June rain which makes the crop. The June rainfall was slightly above normal and the rainfall for May was about one and one-fifth inches above normal this year. A slow one inch rain is equivalent to about twice as much irrigation for it comes when there is little or no evaporation. The rains which come

in summer are apt to crust the surface and may do more harm than good unless it is possible to cultivate.

(4) Temperature and other climatic conditions effect the duty of water to a large extent for the amount of evaporation depends on weather conditions after irrigation.

(5) The method of applying the water. It has been found that furrow irrigation saves about one-fifth over the flooding method and deep furrows have an advantage over shallow ones.

(6) The method and rate of planting affects the water requirements. With thin deep planting, less moisture is needed. The amount of shade produced by the plant affects evaporation and it is usually more economical to have the land completely occupied. Planting in drill rows makes cultivation possible and should be largely practiced to permit moisture conserving tillage.

(7) Kind of cultivation. In order to be most effective, cultivation must be given promptly after irrigation, as soon as the soil is dry enough to crumble. Level cultivation gives less evaporating surface area.

(8) The skill and economy of the irrigator. This is one of the most important factors. Careless use of irrigation water results in a greater loss than is experienced in any other way. In irrigating a cultivated crop like the potato, the irrigator should remain with the water constantly.

(9) Time, amount, and frequency of irrigation. A more economical use of water is secured where it is applied before the crop is checked in its growth by drought. The best amount for any given soil and crop is the quantity necessary to raise the moisture content of the soil strata from the wilting point to the excess point throughout the root zone. Sandier soils will have lower capacity for usable moisture and must receive frequent light irrigations which increases the evaporation loss and cost of application. In working with sandy soils and heavy soils under the same climatic conditions the writer has found it necessary to use some 50 per cent more water in the sandy soils.

(10) The method of purchase and use. The best plan for the small irrigator is to practice rotation in the use of water, and get a large enough head to secure even and rapid distribution. Higher duty is obtained by this method and it is also obtained where the irrigator pays in proportion to the actual amount of water used.

There are many other factors affecting the duty of water, such as the date of planting and maturity and the fertility of the land. There is a greater loss in new ditches and dry virgin soil requires more water

the first few years. The irrigator in this district should use nothing above the least amount of water that will give the most economical returns and the greatest profit per acre inch, irrigating where ever possible by the furrow method and following irrigation where ever practicable by cultivation. Anything above the least economical amount will produce unfavorable soil temperatures; bad physical condition of soil; leaching of fertility, and accumulation of alkali.

In time, the duty of water will be fixed scientifically instead of by guess, and will be based on the character of the soil and the crop. If the average farmer in a district will keep 25 or 30 per cent of his ranch in cultivated crops it would lessen the amount of water required and lead to a crop rotation to maintain and build up the soil fertility.

### RECORD OF TRANSFERS

Deeds and Patents Filed Recently With County Clerk at Prineville

- State to Jak D. Honeyman, se ¼ 8-20-12. \$1200.
- W. J. McGilvray to Mrs. M. A. Brook, It 6, blk 9, North Add. to Bend. \$4500.
- H. S. Cophorne to Mrs. M. A. Brook, It 6, blk 9, North Add. to Bend. \$10.
- Inland Empire Co. to C. M. Redfield, It 12, blk 22, Metolius. \$700.
- E. B. James to Bessie Fisher, Its 23-24, blk 19, Laidlaw. \$1
- C. L. Glat to Hettie L. Glat, It 2, blk 2, Sisters. \$1.
- B. F. Allen to G. M. Cornett ¼ int. in e ¼ sw ¼, sw ¼ se ¼ 26-15-14 e ¼ se ¼ 10; sw ¼ sw ¼ 12-16-14; se ¼ sw ¼ 29; s ¼ n ¼ 31; nw ¼, n ¼ ne ¼, sw ¼ ne ¼, n ¼ sw ¼ se ¼ sw ¼ 32-15-15. \$1.
- W. P. Vandeventer to Hattie L. Murphy, It 4, re-subdivision of blk 24, Bend. \$1.
- Thomas Demers to Trudeau T. Demers, sw ¼ nw ¼ 27; se ¼ ne ¼, e ¼ se ¼ 28-18-12. \$1.
- Wm. Johnson to H. C. Meisel, e ¼ nw ¼, e ¼ re ¼ 14-16-12. \$10.
- D. E. Hunter Realty Co. to John S. Parminter, It 10, replat of blk 4, Bend. \$2000.
- Wm. P. Swope to T. J. Seufert, e ¼ 36-21-14. \$1.
- The Bend Co. to D. T. Carmody, Its 11-12, blk 20, Center Add. to Bend. \$1.
- J. W. Baker to A. N. Baker, sw ¼ 20-16-11. \$1.
- Frederick A. Kribs to Walter A. Rogers, e ¼ sw ¼, Its 3-4, 20-16-11.
- Omar C. Claypool to Harry W. Hayden, w ¼ sw ¼, w ¼ nw ¼ 14-15-15. \$1.
- Patents—Peter H. Sandvig, e ¼ nw ¼, sw ¼ nw ¼, sw ¼ sw ¼ 12-16-16.

### TOURNAMENT BREAKS EVEN

Bend and Prineville Tennis Players Meet Sunday.

The informal tennis match between Bend and Prineville players that took place Sunday at Prineville resulted in an even break, each team winning two of the four matches played.

The first match was men's doubles, C. S. Hudson and J. P. Keyes of Bend vs. J. R. Stinson and J. H. Rosenberg, and resulted in a win for the Prineville men, 3-6, 6-0, 6-1. Then Mr. and Mrs. Putnam defeated R. L. Brewster and Miss Baldwin, 4-6, 6-4, 6-1. C. S. Hudson won from L. M. Bechtell in singles, 6-2, 1-6, 6-3. G. P. Putnam was beaten by Henry McCall, 1-6, 6-2, 6-1. The singles match that J. P. Keyes was to have played was called off, owing to the length of time required to play off the matches, most of which proved very close. A return tournament in Bend will be arranged later.

### SUMMONS.

In the Circuit Court of the State of Oregon, for the County of Crook. The Bend Company, a corporation, Plaintiff, vs. G. C. Cooper and N. A. Cooper, co-partners, doing business under the firm name and style of The Terrobonne Lumber Co., Defendants.

To G. C. Cooper and N. A. Cooper, above named Defendants: In the name of the State of Oregon you are hereby required to appear and answer the complaint filed

against you in the above entitled suit within six weeks from the date of the first publication of this summons, and if you fail to appear and answer for want thereof the Plaintiff will apply to the Court for the relief prayed for in the Complaint, to-wit: for judgment against you and each of you for the sum of \$719.20 with interest thereon at the rate of 10 per cent per annum from April 17, 1912, until paid, and for the costs and disbursements of this action.

This summons is served upon you by publication by authority of an order of the Honorable H. C. Ellis, Judge of the County Court of the State of Oregon for the County of Crook. Said order is dated the 24th day of September, 1912, and is duly recorded and entered in said Court and action.

Date of first publication September 25, 1912.

VERNON A. FORBES,  
29-25 Attorney for Plaintiff.

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