

most beyond our powers to conceive. But much of the water that any soil can store is really of no use whatever to croppage, and there is a most excellent reason why. Water in the soil is of two kinds. That which is of permanent or material value is held by tension, capillary power, to each particle or grain of soil, around which it gathers and clings as a fine film. The surplus water, that which establishes saturation and not infrequently is an element of injury, fills the pores and angles between the grains and soil particles. It is the rapid evaporation of this superfluous and unwanted, useless water, that establishes the injurious capillary pores, cracks and crevices in the soil, creating little flues through which the desirable moisture finally (and the more easily) follows the saturation water that was never of any use at all. Thus we get a glimpse, in advance, of what excessive irrigation may be responsible for. Here as a vital factor enters in the unavoidable study of the capacity of our soil and the availability of moisture for its needs. The grower must be persistently more or less of a student of his soil, otherwise genuine success cannot be his. He should know the character of his soils in their relation to ground or permanent water, this factor alone frequently determining the extent of needful irrigation. In other words, no one can intelligently irrigate his land unless he understands what capacity his soil possesses for retention of that water, and that in turn is affected by sub-soil conditions, with which ground water, seepage and other conditions have to do. The irrigator must be governed by this in the freedom or care with which he applies water artificially.

In discussing saturation of soil with water, I want to call attention to the harm done by excessive irrigation. There is one point especially that deserves considerable thought. All soil needs aeration—that is, the entrance of air is imperative. Yet if these pores of which I speak are entirely filled with water, how can air enter? It cannot, of course. It may be imagined that when this surplus water has passed away by evaporation, there will be nothing to hinder the free entrance of air; but this again is erroneous, for so great is the action induced by evaporation that there is an air current in but one direction, and

**MARKET QUOTATIONS.**

Owing to our extensive circulation, market reports must be closed Wednesday noon. Figures quoted are Salt Lake wholesale prices. These quotations are given at the request of many subscribers and are furnished and corrected weekly by the responsible firm of Vogeler Seed and Produce Co.

**Fruits.**  
Lemons, case, \$5.00; oranges, \$5.00; bananas, \$2.50 a bunch and up.

**Butter and Cheese.**  
Creamery butter, 25c; cheese, full cream, 13c to 14c.

**Vegetables.**  
Cabbage, per lb., 2c; potatoes, new Utah's, \$1.50 per cwt.

**Poultry and Eggs.**  
Live hens 11c per lb.  
Dressed hens 13 to 14c per lb.  
Eggs, strictly fresh, per case, \$6.50 to \$7.00.

**Grain, Hay and Flour.**  
Wheat, per 100 lbs., \$1.90; corn, 100 lbs., \$1.80; chop corn, 100 lbs., \$1.85; oats, per 100 lbs. \$1.80; barley, per 100 rolled, \$1.60; bran, per 100 lbs., \$1.30; flour, high patent, per 100 lbs., \$2.70; straight grade, per 100 lbs., \$2.50; alfalfa, baled, 60c. cwt.; timothy, baled, 75c. cwt.; straw, baled, 35c.

**Honey.**  
Honey, case, \$2.75 and \$3.00, extracted, 7 1/2c lb.

that is upward, so long as any moisture remains below to pass up and out; and it may as well be understood that when said moisture is entirely depleted, there is no longer any need of air, nor will it do any good. This



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tremendous disadvantage of having the soil overfilled with water can scarcely be overdrawn. This condition prevents free circulation of air, which is as essential to the growth of the plant as any of the foods upon which it thrives. Proper fertility of the soil is maintained only through the propagation of minute organisms, known as bacteria.

(Continued Next Week.)

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