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## Citrus Notes-Fertilizers

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## CITRUS NOTES

"FERTILIZERS"

## FERTILIZERS.

Among the numerous and perplexing problems which the orchardists of Fullerton and Placentia have to contend with, none, perhaps, cause more weariness of mind than that of fertilizing. We have solved the scale problem, which for a time was a serious menace to the culture of the citrus fruits with us, and while we are still more or less annoyed by these pests, we know the almost certain remedy. This other question, however, still confronts us. We are told by those who pretend to be scientific horticulturists that we must fertilize if we would produce a fine quality of fruit in abundance. Just how to do this, and when and what to do it with we are not told with the definiteness that makes their injunction practical. Indeed, this seems to me pretty much like telling a friend whom we meet and who is not looking well that he should take some medicine.

However, we are not left wholly in the dark, for the fertilizer manufacturers, or their agents, visit us, and each prescribes his particular brand of goods as the specific our soil needs. This is all very well, and quite assuring, but the claims of these gentlemen, ~~who no doubt know a great deal about their profession~~, as to <sup>their particular</sup> ~~the~~ methods of combining <sup>the new materials</sup> and the character and quality of the articles so <sup>combined</sup> ~~mixed~~, and their scientific treatment, are so ~~radically~~ different that we are still bewildered. I say, with all these vague injunctions and claims

of merit pressing upon us, and being weighed down with the thought that we ought to do something <sup>in the way of fertilizing</sup>, we are in a most unpleasant quandary. In fact, after all, we are left to wrestle with the problem quite alone, and I assure you that we recognize our inability to master it in a manner at all satisfactory. I am sure, however, that I will be able to carry back to my people some valuable and practical information ~~on this subject~~, gathered from the wisdom and experience of the gentlemen who shall speak upon ~~this~~ subject at this meeting, and who are recognized as authorities <sup>in</sup> on all branches of ~~citrus~~ fruit culture.

In the use of any kind of fertilizer there are so many unknown conditions prevailing, so great difference in soils and in their <sup>general</sup> treatment, and the ignorance of the <sup>construction of the</sup> fertilizer ~~used~~, that with <sup>me</sup> it is difficult to attend to this important work with any scientific exactitude. Q (over)

The growers of my section have experimented with almost every kind of fertilizer, but the results, in the way of better crops, have not been so marked, and so plainly attributed to the ~~the~~ applied articles, that many of us dare speak with any degree of certainty. We wish we could. One grower, and the only one I have talked with who has continued to use the same compounded article for so long as four years, has gathered each year a profitable crop. A neighbor adjoining, who has used nothing, has also harvested good crops. Another, who has used different kinds,

I presume those who will make the question a study will <sup>mathematically</sup> eventually gain such knowledge as will enable them to discern the wants of their soil & become sufficiently posted in agricultural chemistry that they will know how to provide these requirements at <sup>the</sup> least expense & greatest degree of accuracy. But what is the ordinary rancher going to do about it.



~~of fertilizers with no attempt at regularity~~  
~~the irregularly~~, has usually gathered abundance.

This, of course, is not conclusive evidence that fertilizers <sup>are</sup> not helpful, but

when similar experiences are general it leaves one in great doubt

as to what ~~he~~ <sup>he does</sup> should ~~do~~. We have no money to spend upon that

which does not at least being an equivalent in larger or better

crops, yet we are quite anxious to <sup>do</sup> that which will <sup>enhance the quality of the fruit</sup>

<sup>maintain the groves in vigor for the longest possible time.</sup>

<sup>The soil in the Fullerton and Placentia districts, in general abounds in the essential elements - potash, nitrogen & phosphoric acid</sup>

and <sup>is</sup> capable of sustaining an enormous draft upon it for a con-

siderable time, if properly manipulated. Winter plowing, <sup>couple of</sup> a good

irrigation ~~or two~~, and proper cultivation, I believe has never

failed to produce a good crop, providing always that the trees

are free from scale and intelligently pruned. We do not con-

sider it prudent, however, to make too great demands upon the soil

without giving <sup>back</sup> some equivalent in the way of plant food. I think

many of our people have tried to discover just what is most needed

in the way of substantial diet, but, as previously stated, <sup>only a few have</sup> we have

<sup>found</sup> failed to find that which is satisfactory. As our groves advance in age, however, ~~it~~

<sup>marked results may be noticed in the application of fertilizers.</sup>

Pretty much every brand of commercial fertilizer finds

users among our growers, but so far as my information goes, with

one exception, of those who are not interested in some way in

the sale of these goods, the users have no very decided views as

to results. They are unable to say positively that one kind has

given better results than another, and in many cases are not con-

vinced that any favorable returns were obtained from their use.

There may be reasons for these discouraging experiences which can be explained. <sup>by those informed</sup> If we only knew just what to employ with that

degree of certainty that we use hydrocyanic gas to kill scale <sup>acid</sup>

<sup>ness</sup> I should feel <sup>that the production of citrus fruits could be regulated with almost scientific</sup> ~~profoundly grateful~~.

<sup>accuracy</sup> I recognize one difficulty in the employment of commercial

fertilizers that <sup>not in</sup> frequently prevails, and that is, the too great expectation of immediate good results to be <sup>desired</sup> ~~discovered~~ from their

use. The fertilizer is scattered about, and then a magical

change is looked for, and a consequent inactivity in cultivation

<sup>and the sad perhaps disappointment</sup> results. We should follow the example of the good Baptist deacon

who prayed most fervently for a good crop and then turned all

hands out early to help the Lord answer his prayer. We should

not depend upon the fertilizer, however high priced, to <sup>rather the plan of</sup> ~~answer for~~

the whole process of crop production.

I have been frequently questioned as to what fertilizer we

<sup>on the Santa Isabel Ranch</sup> use; the parties inquiring wishing to know that they might employ <sup>which had produced such excellent results</sup> ~~the same~~. I regret very much that I <sup>have been</sup> ~~am~~ unable to reply to these

queries in a manner that makes the answer of any practical value.

Two years ago I made what I intended to be a fairly practical test

of different fertilizers. I cannot say that the experiment was

satisfactory in giving the information that would guide me in the

future as to what to do to insure a crop. Upon a plot of 1000

trees I put a light dressing of sheep manure. Upon the next 1000

I used commercial fertilizer. The adjoining 1000 I passed without



giving anything. Upon the next plot I used lime cake; next to this I used bone meal. Then, upon another lot, I used the sheep manure, commercial fertilizer, bone meal and lime cake, and some wood ashes, a little of each. The crop came, and it was in great abundance in all parts of the orchard. I am frank to say that I could not distinguish any material difference in either the quantity or texture of the fruit grown upon the various plots. This was not a little disappointing, for I had looked forward to this plan of testing soil requirements, and the relative value of various fertilizers, to decide this most perplexing question.

I supposed I would be able to tell thereafter just what the soil demanded in order to produce desired results. But I was still

*I will add that while I may have been unable to have distinguished any material difference in results of the employment of fertilizers I have noticed unmistakable evidence of the value of proper irrigation & cultivation*

The year following, last year, being able to secure sheep manure at what I considered a reasonable price--2 1/4 cents per cubic foot, distributed in the orchard--I used it in giving the orchard a light dressing, with the exception of two plots. The harvest was the heaviest <sup>ever</sup> secured and the fruits of the highest grade, <sup>the yield in</sup> and I saw no material difference in any part of the orchard.

I am quite aware that there was a combination of favorable influences prevailing generally last year, which gave the greatest abundance to non-users of fertilizers as well as to their most enthusiastic advocates, <sup>over</sup> and to those who used a common article as to those who applied the most expensive commercial production.

So I am still in doubt.

*The portion of the orchard which I consider the heaviest all ~~over~~ this year is the plot that had the entire combination of fertilizers two years ago. Other favorable conditions are at least in a measure responsible for this*



I am convinced that we have much plant food <sup>some of</sup> in our soils that is not utilized on account of our failure to sufficiently aerate the soil, by proper and frequent cultivation. The air, I believe, is an essential factor in carrying on the process of nitrification. A circulation of air through the soil will unquestionably increase the available supply of nitrogenous food. I know little of chemistry, but I observe that soils kept open and thoroughly aerated produce great growth, even without the application of fertilizers of any kind; whereas, soil compacted however rich in plant food will not compare in results. I thus philosophize because I believe much plant food will never be utilized until <sup>properly</sup> aerated <sup>properly</sup> ~~by cultivation~~. Cultivation is therefore an important factor in proper fertilization of soil.

Fertilizers are variously applied by our orchardists.

One grower, and he has a fine, well-kept orchard, I notice, scatters barnyard or sheep manure <sup>immediately</sup> ~~around the trees~~ <sup>frank of the</sup> ~~extending from the trunk~~ out five or six feet. <sup>however</sup> Generally fertilizers are scattered broadcast between trees, and plowed under; some, however, drill it in.

The latter, for commercial goods, or ground sheep manure, is the best method in my opinion. <sup>is vigorous</sup> ~~the fruit is in growing~~ <sup>I observe that the grower first</sup> ~~manure~~ <sup>refined</sup>

However, the advocates of these different methods point to good crops as result of their plans. One thing is certain, it either makes little or no difference what is used, or how applied, or else the fertilizers are so all-powerful that <sup>it</sup> is only necessary to have them come in contact with the soil to have it respond.

Some of our people have experimented with green crops for fertilizing, but have nothing satisfactory to report. Perhaps, if they had used some of the leguminous plants recently secured from Europe, and so highly recommended by Professor Hilgard, and others, results might have been quite different.