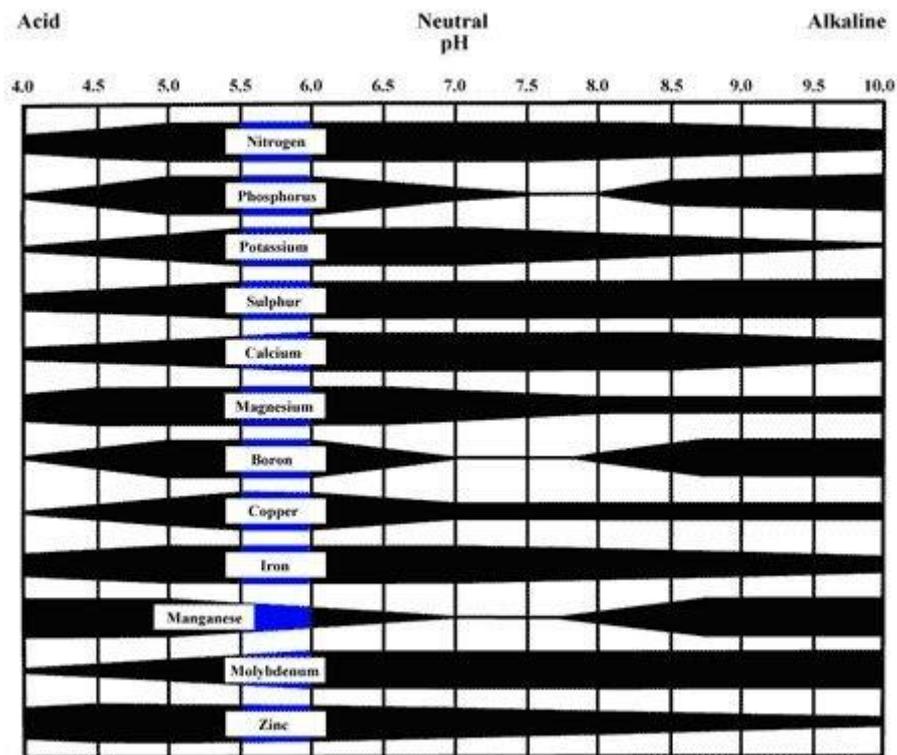


PH OF WATER CAN AFFECT CHEMICALS AND FERTILISER EFFICACY.

Influence of pH on the availability of plant nutrients



Adapted from R.E. Lucas and J.F. Davis (Soil Science 92:177-182, 1961)

PH FOR FERTILISERS

As can be seen on the PH/FERTILISER Chart, the PH that gets the maximum results from all the elements, is between 5.5 to 6.0 PH. Some of the minor trace elements, Manganese and Zink are just starting to drop off their maximum.

When the water is alkaline (above 7 PH) there are four elements that are still available at their maximum, Nitrogen, Sulphur, Calcium and Molybdenum. The rest become less available depending on how high the PH goes.

When the water is in the acidity area below 5.5 PH, all but one, Manganese, start to become less available. Using a low PH is not recommended, (below 5.5) distribution of fertiliser elements become poor and erratic, also root burn is a possibility. To get

best results out of your orchids and not wasting your fertiliser, I would try to keep the PH around 5.5 to 6.5.

PH FOR CHEMICALS

PH of water can decrease or increase the lasting period and product quality of the Insecticides and Fungicides.

Have you ever experienced less than adequate pest control, even though you have applied your insecticides and fungicides, according to all the directions on the label? It is often attributed to factors such as insect resistance, poor timing or poor application techniques. Another factor that is now receiving particular attention is the PH of the water, used in the preparation of the spray solution.

Many Insecticide solutions, particularly carbonates and organophosphates, lose their effectiveness in an alkaline (7.0 +PH) water by a process called "ALKALINE HYDROLYSIS". This process causes the insecticide and fungicide molecules to split into inactive or non-active compounds. The rate of decomposition depends on the insecticide/fungicide and the alkalinity of the water. Thus an insecticide/fungicide may start to break down as soon as it is added to the spray tank, causing it to be less affective or even totally ineffective for control of pests and diseases. If you allow a spray mix to stand for a couple of hours or even overnight before using it, 50% or more of the active ingredients may be decomposed under alkaline conditions. The net result is poor pest and disease control.

The following is the results of tests on the effectiveness and PH influence of some insecticides and fungicides.

CARBARYL		LORSBAN		CAPTAN	
PH	50% Life	PH	50% Life	PH	50% Life
6	100/150days	7	35days	4	32.4 hrs.
7	24/30days	8	1.5days	7	8.3hrs.
8	2/3days			10	2min.

Our water supply in Bundaberg varies from 4.7 to 9.1 PH; my water supply is 7.4 PH, which I bring down to 5.5-6.6.0 PH, using phosphoric acid. The amount depends on the PH of the water and the volume in the spray tank. I use this level for Insecticides, fungicides and fertilisers.

Do not mix Fertilisers, Insecticides or Fungicides, especially if the Ph is different, as this can cause poor results. There is also no guarantee, that the reaction between each of the chemicals, will have an adverse effect on the results, that each is being used for. I never mix any of the above .It may take you a little longer to spray, but the results are usually better.

Sprays containing lime, lime sulphur and fixed copper fungicides should not be acidified.

Am I raising a red flag, NO!! I am however raising a yellow caution flag, especially if you have been at all dissatisfied with the success of your pest/fungal program over the years. Alkaline hydrolysis is but one of the many factors that can affect the stability of insecticides/fungicides in the spray tank and subsequently reduce the efficiency of you eradication program.

PH requirement lists can be obtained from most suppliers of horticultural products who have an agronomist on staff.

Have your water supply tested?