Minor elements can be overdone

L T. Jones

Follow this and additional works at: https://researchlibrary.agric.wa.gov.au/journal_agriculture4

Part of the Mineral Physics Commons, Organic Chemistry Commons, and the Plant Biology Commons

Recommended Citation
Available at: https://researchlibrary.agric.wa.gov.au/journal_agriculture4/vol2/iss2/13

This article is brought to you for free and open access by Research Library. It has been accepted for inclusion in Journal of the Department of Agriculture, Western Australia, Series 4 by an authorized administrator of Research Library. For more information, please contact library@dpiard.wa.gov.au.
MINOR ELEMENTS CAN BE OVERDONE

By L. T. JONES, B.Sc. (Agric.), Plant Research Division

The term “minor elements” which is now commonly used and well understood by farmers and gardeners, refers to the five essential plant foods—copper, zinc, manganese, molybdenum and boron. These five essential plant foods are needed by all plants in minute quantities and it is relatively easy to use them in excess of actual requirements or even in toxic amounts. In practice this is not usually a problem with cereals and pastures. The important exception is when zinc alone is added to a cereal crop low in copper and the extra zinc accentuates the copper deficiency, and poorer yields are obtained.

With citrus trees, copper deficiency is often controlled by the use of a soil dressing of bluestone or copper sulphate at the rate of 1-4 lb. per tree depending on the size of the tree. For safety this material is normally placed in a circular furrow about 3 feet out from the trunk of the tree. If this quantity of bluestone is broadcast uniformly up to the trunk of the tree, it may severely injure the root system so that the tree either dies or quickly sheds its leaves.

Most of the local cases of minor element toxicity have been met with in market gardens but the principles involved apply equally as well to home gardens and the recommendations discussed will refer specifically to these two fields. It is usual to recommend a copper application of about 10 lb. per acre of bluestone as adequate and safe. The copper containing fungicides—Bordeaux spray and Copper oxychloride also supply copper to the plant. Zinc may be applied as zinc oxide at 3-5 lb. per acre or as zinc sulphate at 5-10 lb. per acre. The zinc containing fungicides such as Ziram and Zineb also supply zinc to the plant. It is recommended to apply 10-20 lb. of manganese sulphate per acre for row placement and up to 56 lb. per acre if broadcast. A more popular method is to use a 1 per cent. manganese sulphate foliage spray. Although manganese deficiency is prevalent in market gardens, manganese excess is also a very common problem as the result of the unwarranted heavy applications of manganese sulphate. It is quite common in garden crops, and especially in tomatoes, to see a characteristic yellow leaf symptom which in many cases has been induced by toxic levels of copper, zinc or manganese either singly or combined.

Sodium molybdate at 2 lb. per acre is one method of controlling molybdenum deficiency in the very susceptible crops such as cauliflower, rockmelons and cucumbers. In the seedbed, 3 oz. of sodium molybdate to 10 square yards of bed is used and this is sufficient for their complete life. A foliage spray of 1 oz. or less of sodium molybdate to 4 gallons of water may also be used, if applied when the plants are reasonably young.

For the control of boron deficiency, it is usually recommended to apply borax at the rate of 10-20 lb. per acre, as higher rates may be toxic.

It has been found from local experience that the minor elements can be safely applied at the rates previously quoted and furthermore, annual applications at these rates do not appear as yet to have built up to toxic levels. It is also evident that
minor elements are being applied in a large number of cases as a form of insurance against the occurrence of possible soil deficiencies which in actual fact are not operating.

And finally, don't use minor element mixtures just because it is fashionable. Satisfy yourself firstly that there is a genuine need for their use, then apply them when necessary at the correct and safe quantities. Always remember that you are dealing with nutrients which quickly become poisons when used at excessive doses.

---

**SULPHATE OF AMMONIA**

The World's Most Popular Nitrogenous Fertilizer — is **IDEAL** for use "straight," or in well-balanced mixed fertilizers for all crops. It is entirely safe and its continued and increasing use over a long period in Australia, has made

**SULPHATE OF AMMONIA**

a powerful influence towards **MORE PROFITABLE** primary production.

**SULPHATE OF AMMONIA**

is made in Australia, and is distributed by all major fertilizer companies or their agents.

Use "straight" **SULPHATE OF AMMONIA** with confidence, and see that all mixed fertilizers you buy contain adequate nitrogen as **Sulphate of Ammonia**.
MAKE MIDLAND JUNCTION YOUR SHOPPING HEADQUARTERS FOR EVERYTHING

YOU SAVE MONEY AND MILEAGE - NO PARKING WORRIES

WE BUY OATS, CHAFF AND COARSE GRAIN

WE SELL A COMPLETE RANGE OF FERTILIZERS AND HARDWARE

W.A. PRODUCE CO.
6 GREAT NORTHERN HIGHWAY, MIDLAND JUNCTION. PHONE 741215

also at
109-113 OXFORD STREET, LEEDERVILLE. 8 1680 - 8 3354

347 CHARLES STREET, NORTH PERTH. 24 2175
WHEATFARMERS! GRAZIERS!
A revolutionary new
LYSAGHT SILO
for easier, year-round
storage!

Here is a silo that will earn money for you all the year round. When not being used for bulk grain, it becomes a perfect all-purpose storage unit simply by opening the doors and slipping out the bulkheads.

EACH FEATURE CAREFULLY PLANNED
TO SAVE TIME AND MONEY!

- Full-Size "Walk-In" Door (silos from 1,200 bushels upwards) also enables silos to be emptied and cleaned with minimum of time, effort and discomfort.
- Easier, Faster, Cheaper Erection.
- Vertically Rigidised Walls and 4-Ply Horizontal Ribs— for added strength.
- Auger Chute and Sampling Outlet—in bottom bulkhead behind the door!
- Revolutionary New Robust Positive Action Bagging Outlet— complete with Bag Holder.
- Improved Centre and Side-Filling Hole Assemblies.
- Wider Turned-Down Eaves on Roof Panels.
- Fully Rodent-Proof Construction.

OPTIONAL EXTRAS—
- Steel Floor—suitable for either flat or bonical bases.
- Steel Earth Ring.

There is a Lysaght Silo For Every Storage Need

PRICES EX FREMANTLE STORE

<table>
<thead>
<tr>
<th>Nominal Capacity</th>
<th>Steel Silo</th>
<th>Steel Earth Ring</th>
<th>Steel Floor (Opt. Extra)</th>
<th>(Opt. Extra)</th>
</tr>
</thead>
<tbody>
<tr>
<td>500 Bushels</td>
<td>£93</td>
<td>£11/10/-</td>
<td>£11/10/-</td>
<td>£47</td>
</tr>
<tr>
<td>1,200 Bushels</td>
<td>£172</td>
<td>£22</td>
<td>£31</td>
<td>£47</td>
</tr>
<tr>
<td>2,000 Bushels</td>
<td>£240</td>
<td>£22</td>
<td>£31</td>
<td>£47</td>
</tr>
<tr>
<td>3,100 Bushels</td>
<td>£318</td>
<td>£31/10/-</td>
<td>£47</td>
<td>£47</td>
</tr>
<tr>
<td>3,700 Bushels</td>
<td>£349</td>
<td>£31/10/-</td>
<td>£47</td>
<td>£47</td>
</tr>
</tbody>
</table>

*The 500-Bushel silo is not equipped with a door. Price includes steel floor.

Vertical Grain Augers designed to centre fill all Lysaght Silos from 1,200 to 3,700 bushels are available. Prices: £105, £119, £125 Ex Fremantle Store.

John Lysaght (Australia) Pty. Limited
8 Pakenham Street, Fremantle.