

PROFITABLE PRODUCTION OF ONIONS AND GARLIC INCREASING YIELD AND BULB SIZE

The Onion and Garlic industries are constantly searching for better production methods and maximisation of outputs and economic returns. An important issue facing growers is efficient management of nutrients, particularly Nitrogen, Phosphorus and Potassium. Often, the method and rate of fertiliser application leads to an accumulation of nutrients in the soil system, resulting in nutrient lock-up.

Importance of Balanced Nutrition

Balanced nutrition plays a major role, if not the biggest role in the production of quality produce. The aim of the grower should always be to optimise fertiliser practices and never cut costs by cutting out on fertilisers. All vegetable crops have nutrient demands and these demands vary among the many crops. Over the years, growers have had the tendency to use larger amounts of Nitrogen which can lead to nutrient imbalances and even promote the onset of pests and diseases.

Under field conditions, fertiliser applications should be modified to suit soil type, and soil fertility. From time to time, serious nutrient disorders will appear in a crop and this can cause a severe setback in crop yield and quality. The severity of the setback will depend on how soon the problem can be identified and detected. Regular checks on nutrition using leaf analysis gives the earliest possible warning of nutritional stress. Crop monitoring is an extremely valuable technique to ensure yield, quality and crop health are all at their optimum.

The inefficient use of applied nutrients is also undesirable from an economic point of view. Furthermore, excessive nutrients in the soil can accumulate in plant tissues and affect crop quality and storage. Growers are aware of the consequences of using excessive rates of fertilisers, however, they are often reluctant to lower the rates, in case yields are compromised.

A range of products were trialed to test their efficacy on improving the yield and quality of garlic and onions.

Garlic Trials

Trials conducted in southern New South Wales and Victoria on the production of Garlic have given phenomenal results. Garlic requires a heavy feeding program with proper timing and rates of application. Providing the right elements during critical stages of growth



Left: Mr. Benny Cimino in the midst of his garlic crop 30 days before harvest.

Right: Garlic bulbs just after harvest showing average diameter sizes of 7.5 - 8cm.

has increased stem thickness, increased clove size and the number of cloves per bulb; resulting in an increase in crop yield.

"I have never seen my plants so healthy, thick and bulb size has never been this large. I can attribute this to using the Zadco program and products" said Mr. Benny Cimino a known garlic grower in southern New South Wales (pictured above).

On alkaline soils, applications of extra trace elements and magnesium are necessary after planting and before bulbing. "This has been a repeated observation in many onion and garlic growing regions " commented Mr. Zady, General Manager and Agronomist for Zadco.

The BIOMIN Trace elements were used to promote bulb size and crop health. Adequate supplies of certain trace elements (such as those found in BIOMIN BOOSTER V, BIOMIN ZINC AND BIOMIN COPPER) can increase individual bulb size by up to

13%. The trace element applications also gave thicker stems and greener leaves, which ultimately equals bigger bulbs and bigger cloves. Therefore an improvement in crop quality and yield were achieved.

Onion Trials

Trials conducted in regions of New South Wales, and Victoria for both fresh market and seed production of onions have illustrated the importance of a balanced nutritional program. Several growers swear by the use of PHOSCARE, the BIOMINS and TRI-D25 throughout the growing season.

A trial was conducted using TRI-D25 and BIOMIN COPPER on onions, which yielded an entire field of 'Colossal' sized onions. The onions treated with TRI-D25 and BIOMIN COPPER were on the average much bigger than a regular size softball. (Figure 2)



Figure 2. Onions in field treated with *TRI-D25* and *BIOMIN COPPER* compared with a regular sized softball.

Mr. John Ross, an onion seed grower for South Pacific Seeds (SPS) used the products throughout the previous season and believes that he has been able to keep diseases at a minimum and plant health at a maximum. "Since using Phoscare and Tri-D25, I have been able to minimise the level of disease pressure and improve onion seed quality. I am extremely happy with the results and would recommend these products to all onion growers," Mr. Ross explains.

The importance of applying beneficial soil fungi such as those found in Tri-D25 (*Trichoderma spp.*) is that there are major economic returns for the grower. *Trichoderma* fungi have been used extensively for many years as beneficial soil inoculants to aid in the suppression and antagonism of detrimental soil borne pathogens. The outstanding outcomes obtained from the application of Tri-D25 to the crop were; better seed germination, increased survival rates, abundant root proliferation, improved plant

growth and vigour, healthier plants and better quality bulbs (skin quality).

Nutrition affects the rate of growth and natural defense mechanisms of plants to defend themselves against disease attack. High levels of Nitrogen are used in the production of *Allium* crops and this results in the production of young, succulent growth which make the plant more susceptible to pathogens that normally attack such tissues. Agrios, in his book about plant pathology clearly states the importance of nutrition in relation to disease development. In relation to the balance of Nitrogen, Phosphorus and Potassium, high Nitrogen levels favour the development of rusts and mildews, especially if Potassium and Phosphorous levels are low.

Phoscare (0-28-25) was trialed for its nutritional benefits in correcting and/or preventing such nutrient imbalances. The addition of high levels of Potassium and Phosphorous will make the conditions unsuitable for these diseases to survive and also promote better plant health. Therefore, the correction of nutrient imbalances has been able to achieve certain levels of disease resistance.

Summary

Profitable onion and garlic production revolves around the right type of fertiliser, professional guidance and balanced nutrition. Most growers can obtain relatively high yields, however, how many growers are producing top quality produce? This is a paramount issue in the local and export markets and for Australian growers to remain sustainable and competitive, the right choice must be made in regards to better management practices in the field, especially in the use of fertilisers.

ZADCO NEWS

Zadco for Quality Gro Pty. Ltd.

11 Tecoma Drive,
Glenorie. N.S.W 2157

Australia.

Ph: +62 2 9652 0220

Mobile: 0418 479 839

Fax: +62 2 9652 0011

Email: zadco@ozemail.com.au

Website: <http://www.ozemail.com.au/~zadco>