

READ THE LABEL BEFORE USE.

MoBee™

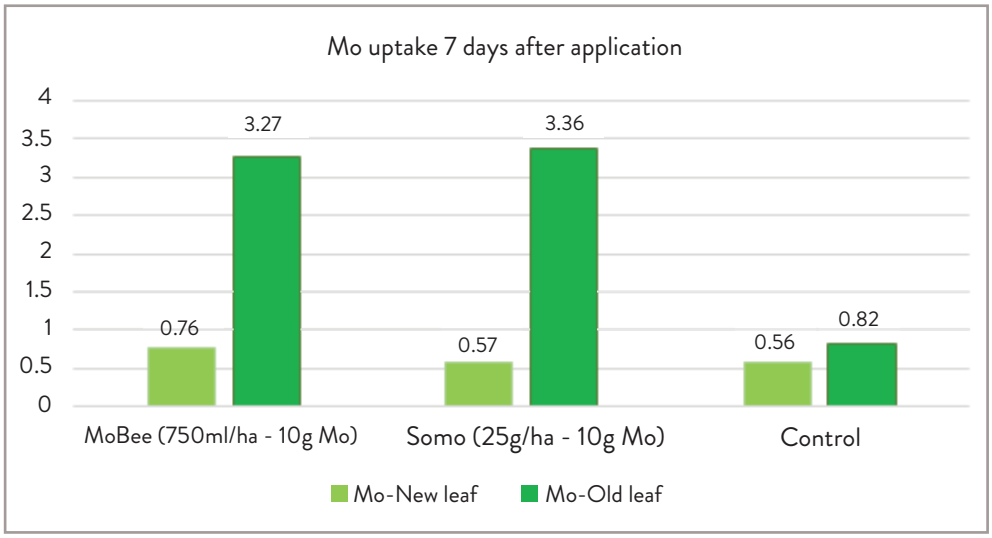
A LIQUID FERTILIZER FOR FOLIAR APPLICATION FOR THE PREVENTION AND CORRECTION OF MOLYBDENUM AND BORON DEFICIENCIES.

ADVANTAGES OF MoBee™

- Boron and Molybdenum in liquid form
- Unique formulation ensures uptake
- Registration on many crops

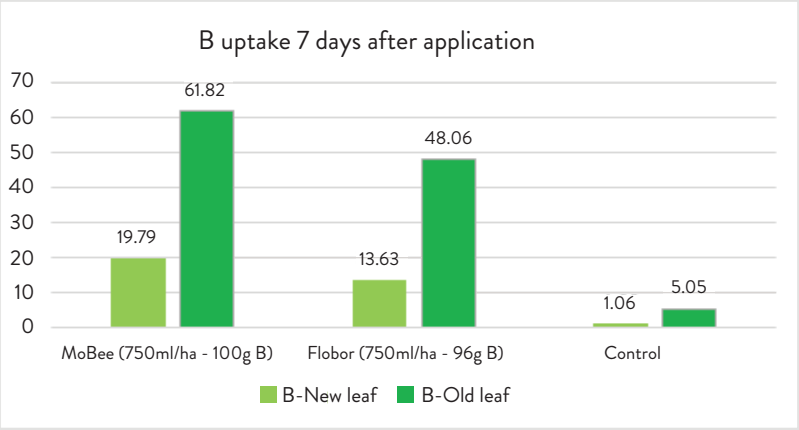
UPTAKE OF MoBee™

MoBee™ was applied to lettuce and a sap analysis for absorption of Molybdenum was done 7 days after application. It was compared to Somo at the same effective Molybdenum rate.



AECI® PLANT HEALTH

Furthermore, MoBee™ was also compared with the same dosage/ha of Flo-Bor® which gives approximately the same amount of Boron, and absorption was determined with sap analysis 7 days after application.



One can see that the formulation of MoBee™ is very effective and that new and even the old leaves show absorbtion of Molybdenum and Boron compared to the control.

FUNCTIONS OF BORON IN PLANTS:

BORON(B) IS A MICRONUTRIENT CRITICAL TO THE GROWTH AND HEALTH OF ALL CROPS.

The main functions of Boron are related to cell wall strength and development, cell division, fruit and seed development, sugar transport and hormone development. Sufficient boron nutrition is critical for high yields and quality of crops. Boron deficiencies lead to many anatomical, biochemical and physiological changes in plants.

Plant hormone regulation

Essential for seed and fruit development





Maintains cell wall integrity and aids in cell division

Aids in translocation of sugars within the plant

- **CELL WALL STRUCTURE**

Boron is involved in cell wall structure along with Calcium (Ca). Boron is involved in the movement of Ca in the plant and in normal Ca nutrition in plants. For example, "hollow-heart" in peanuts can occur when a deficiency of boron limits Ca movement, normal cell wall development and cell division.

• CELL DIVISION

Boron is essential in the actively growing parts of plants, such as root tips, and in new leaf and bud development. This involves the meristematic (growing) tissues in plants or the cells that multiply rapidly so that plant growth can take place. A deficiency of Boron is usually noticed by a change in plant structure in these actively growing parts.

• FLOWER AND FRUIT

The Boron requirement is much higher for reproductive growth than for vegetative growth in most plant species. Boron increases flower production and retention, pollen tube elongation and germination, and seed and fruit development. For example, a deficiency of Boron can cause incomplete pollination of maize or prevent maximum pod set in soybeans.

• SUGAR TRANSPORTATION

For photosynthesis to continue in plants, the sugars must be moved away from the site of their development, and stored or used to make other compounds. Boron increases the transport rate of sugars (produced by photosynthesis in mature plant leaves) to actively growing parts and also in developing fruits. Boron is essential for the supply of sugars necessary for root growth in all plants and also for normal development of root nodules in legumes such as soybeans and peanuts.

• PLANT HORMONE REGULATION

Plant hormones regulate many growth and reproductive functions. Flower initiation, fruit development, cell wall and tissue formation, and root elongation are all influenced by hormones. Boron plays an important role in regulating hormone levels in plants.

FUNCTIONS OF MOLYBDENUM IN PLANTS:

MOLYBDENUM (Mo) IS REQUIRED BY PLANTS FOR CHEMICAL CHANGES RELATED TO NITROGEN NUTRITION.

In non-legume crops (such as cauliflower, tomatoes, lettuce, sunflowers and corn), Molybdenum enables the plant to use the nitrates taken up from the soil. Where the plant has insufficient Molybdenum, the nitrates accumulate in the leaves and the plant cannot use them to make proteins.

Molybdenum is an essential component in two enzymes that convert nitrate into nitrite and then into ammonium before it is used to synthesize amino acids within the plant. It is also required by symbiotic nitrogen-fixing bacteria in legumes to fix atmospheric nitrogen.

Molybdenum is involved in the synthesis of abscisic acid which has important roles in seed development and maturation, in the synthesis of proteins and various osmolytes, which enable plants to tolerate stresses due to environmental or biotic factors.

Converts nitrates into amino acids and proteins within the plant

Essential for the process of symbiotic nitrogen fixation by rhizobia bacteria in legume crops



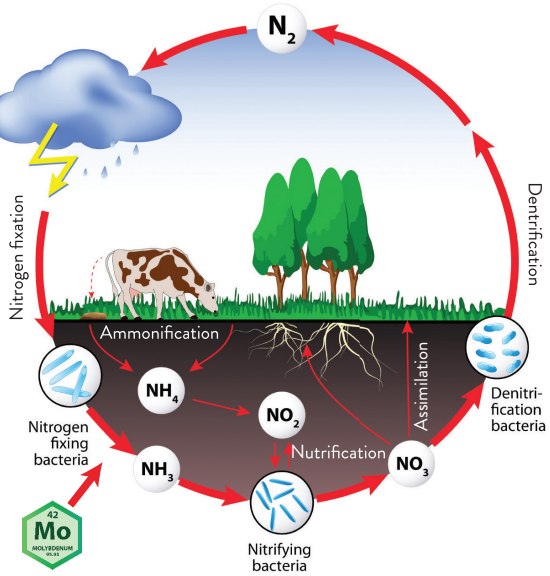
Optimizes plant growth

Involved in synthesis of abscisic acid



NITROGENASE

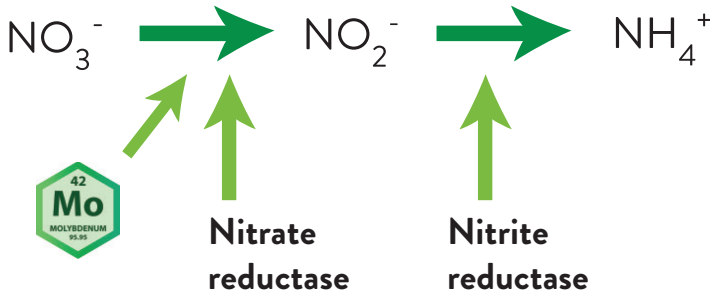
Molybdenum is required for biological nitrogen fixation, an activity facilitated by the Molybdenum-containing enzyme nitrogenase. Various types of asymbiotic bacteria, such as *Azotobacter*, *Rhodospirillum* and *Klebsiella*, are able to fix atmospheric nitrogen, but of particular importance for agriculture is the symbiotic relationship between *Rhizobium* and legumes.



Molybdenum is required for biological nitrogen fixation.

NITRATE REDUCTASE

The essential nature of Molybdenum as a plant nutrient is based solely on its role in the nitrate reduction process via nitrate reductase. Nitrate reductase is an enzyme that catalyzes the first and rate-limiting step of nitrate assimilation, reducing nitrate (NO_3^-) to nitrate (NO_2^-). This enzyme occurs in most plant species as well as in fungi and bacteria, and is the major Molybdenum protein of vegetative plant tissues. Because nitrate is the major form of soil nitrogen absorbed by plant roots, the role of Molybdenum as a functional component of nitrate reductase is of greater importance in plant nutrition than its role in nitrogen fixation.



MOBEE™ Reg. No. B6545, Act No. 36 of 1947

Registration holder:
AECI® Limited, Reg. No. 1924/002590/06
PO box 14418 Witfield 1467
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Composition: (DANGER)

Nitrogen (N)	40.0 g/kg (53.6 g/l)
Boron (B)	100.4 g/kg (134.54 g/l)
Molybdenum (Mo)	10.1 g/kg (13.53 g/l)

GHS Hazard Statements:
- Causes skin irritation.
- Causes serious eye irritation.
- May damage fertility and the unborn child.

MoBee™ is a pending trademark of AECI® Limited.

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