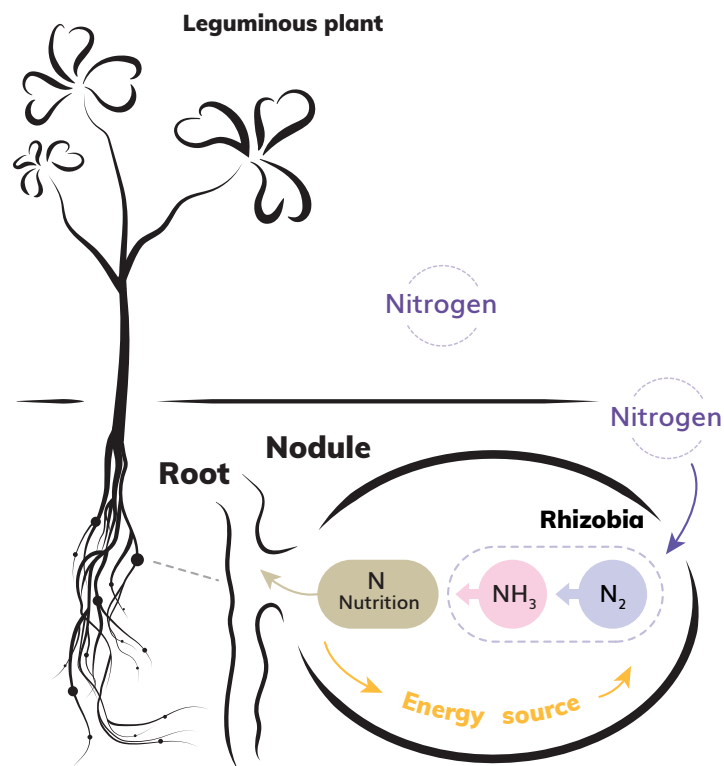




## Introduction

Nitrogen is the most important for many processes in plant cells. Nitrogen is also the main component of chlorophyll, which carries out one of the most important process on earth – photosynthesis. Nutrition element nitrogen is also a major component of amino acids, RNA and DNA. Plants can absorb nitrates and ammonium ions, but atmospheric molecular nitrogen is not available to plants by which plants use sunlight energy to produce sugars from water and carbon dioxide.

Figure 1.



## Challenges

Intensive tillage, increased mineral fertilizer rates and non-compliance with scientific advice lead to soil erosion and reduced fertility. Excessive use of nitrogen fertilizers leads to changes in the nitrogen cycle, pollutes groundwater and contributes significantly to the greenhouse effect. It is known that only about 30-60% of mineral nitrogen is used in plant nutrition. Today, the challenge is to solve the nitrogen problem in agro-ecosystems by minimizing environmental damage, reducing the use of mineral nitrogen and improving the absorption of atmospheric nitrogen.



## Solution

Azofix Alfalfa is a microbiological biostimulator for plants, designed to enhance symbiotic associations and to form the highest possible amounts of symbiotic bacteria in the roots of leguminous plants - luzerne, and to ensure the nutritional needs of plants.

### Registration information and certificates

Suitable for: luzerne.

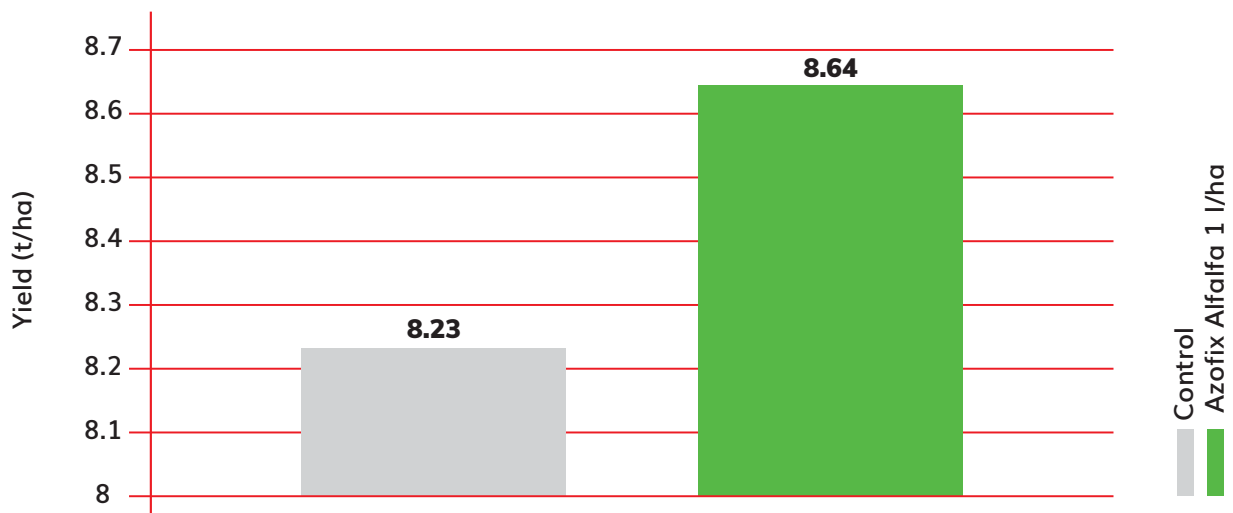
## Mode of action

Azofix Alfalfa contain bacteria, that has to be introduced into the soil, then it begins to absorb nitrogen from the atmosphere. These bacteria are symbiotic and accumulate atmospheric nitrogen once they form symbiosis with the root-hairs of leguminous plants or used for luzerne seed treatment by forming nodules on the roots.

## Benefits and Results

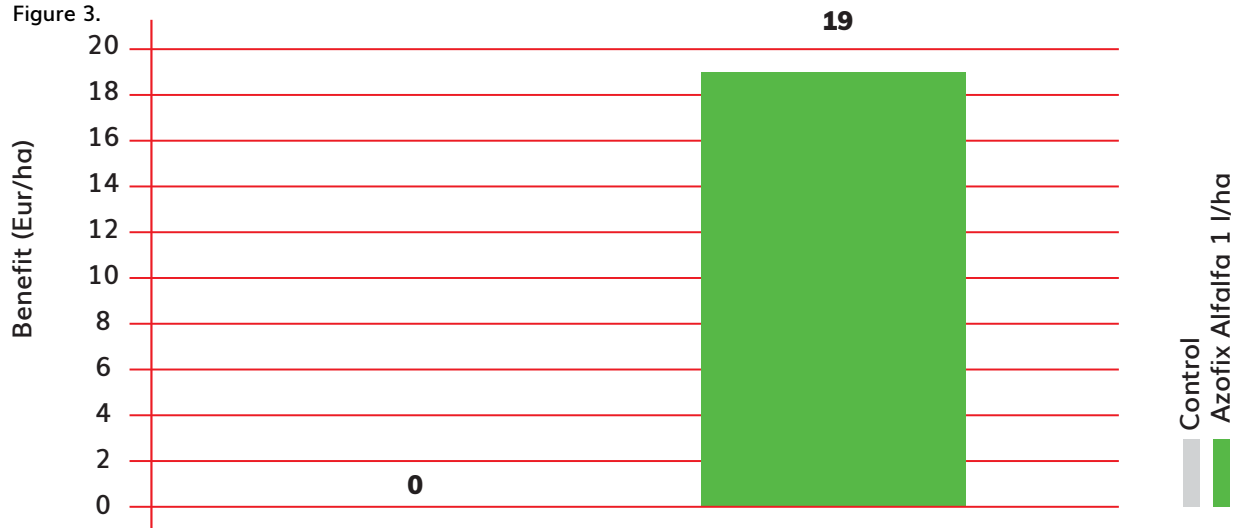
- More intensive formation of nodules on the roots of the plant;
- More efficient fixation of atmospheric nitrogen;
- The potential of plant genetic productivity is developed;
- Better quality yield;
- Promotes the biological activity of soils;
- Improves soil structure and sorption, water and air regimes in the soil;
- Can be used on organic farms.

Figure 2.



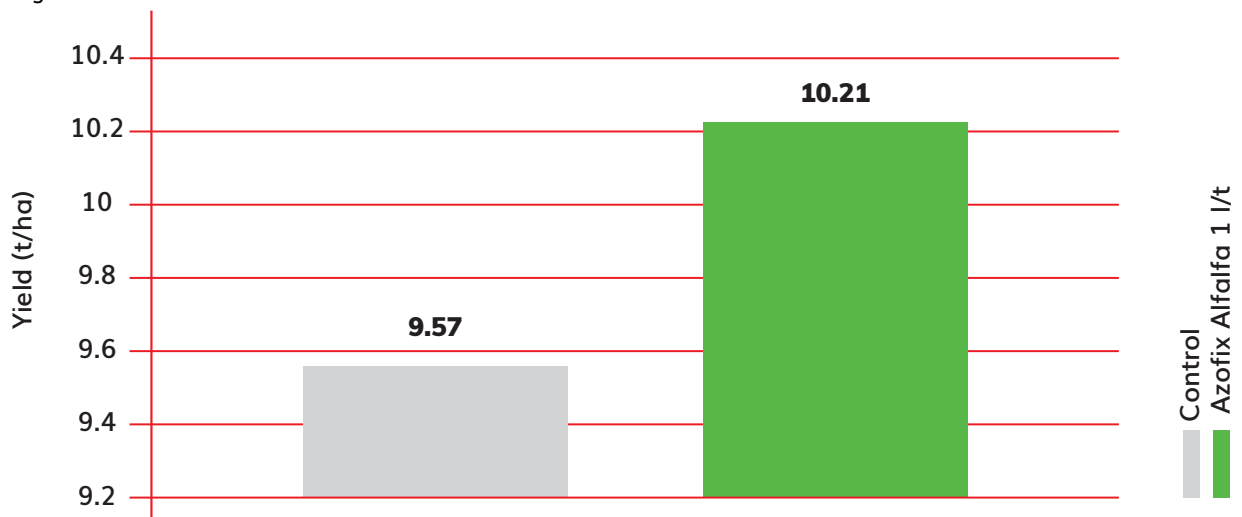
LAMMC Vezaiciai Research Center, 1st Cut of 2nd Year Luzerne, 2020

Figure 3.



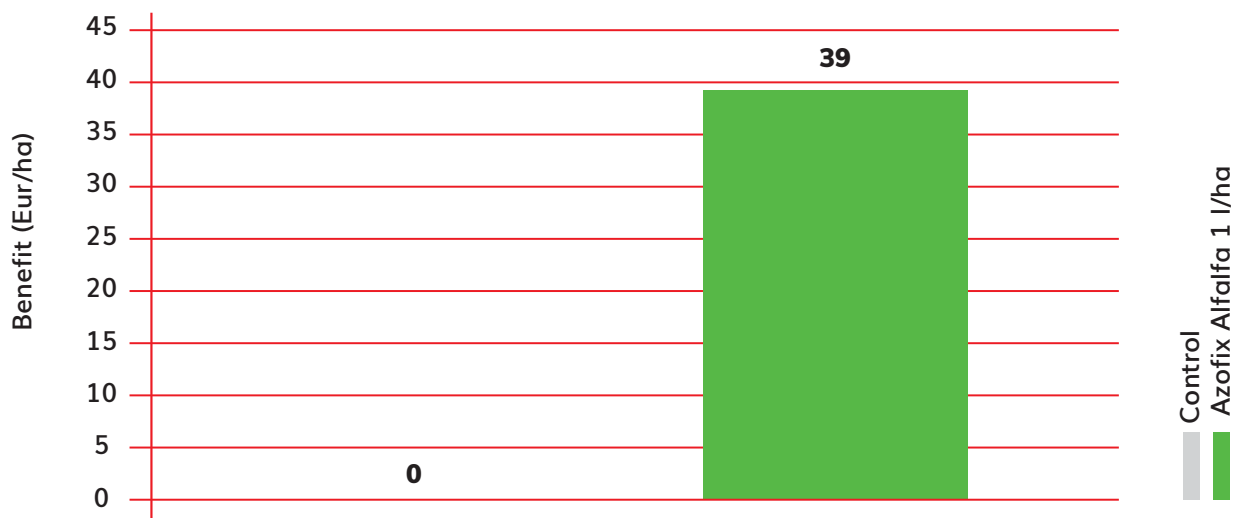
2020. Luzerne Market Price 85 Eur/t

Figure 4.



LAMMC Vezaiciai Research Center, 2nd Cut of 2nd Year Luzerne, 2020

Figure 5.



October, 2020. Luzerne Market Price 85 Eur/t

## Application rate, technology

**Application rate:** luzerne: 1-3 l/ha – after cut, restart of vegetation.

**Application requirements:** the sprayer pressure must be 1-10 bar or 15-145 psi; lucerne seed coating - 1l/t nozzle size is at least 50 µm.

**Safety and storage:** product can be mixed with all kinds of fertilizers and pesticides unless the manufacturer of fertilizer or pesticide states otherwise. May contain natural sediments. Storage at high temperature above 30 °C must be avoided. Use Azofix Alfalfa as soon as possible after opening or store in the refrigerator (4 °C) once it is opened and use it within 72 h. Contamination of the product may occur at any time after opening and the manufacturer takes no responsibility for opened and unused product.

**Product is non-toxic and has no irritating compounds.** There is no risk to humans, animals and the environment. After contact with the skin or eyes, wash with running water. Microorganisms may have the potential to provoke sensitising reactions.

## Specifications

**Composition:** *Ensifer meliloti* MVY-026 ( $1.2 \times 10^{12}$  CFU/l); K–1740 mg/l; Ca–218 mg/l; Na–204 mg/l; P–180 mg/l; S–165 mg/l; Mg–20.3 mg/l.

**Packaging:** 20 l; 10 l; 5 l; 1 l.

- **Biological activity:** biological fixation of atmospheric nitrogen; symbiotic microorganism;
- **Physical state:** liquid biological product;
- **Viability, shelf life:** 3 months. The manufacturer does not recommend storing the product above 30 °C.
- **Working conditions:** 5-37 °C soil temperature; 4.5 to 9.5 pH;
- **Chemical parameters:** dry matter 1.5%; pH 7.2; organic matter 72.2%;
- **Physical parameters:** colour from light grey to grey; dynamic viscosity 0.8 mPas; density 1.01 g/cm<sup>3</sup>.

**Manufacturer:** "Bioenergy LT", Staniunu str. 83/1, LT 36151 Panevezys, Lithuania.

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