

## **Preliminary studies on the tolerance of an induced autotetraploid population of *Lotus glaber* Mill. (= *Lotus tenuis*) to *Tetranychus* sp: *Tetranychidae* (red mite).**

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### **Introduction**

The genera of red mites *Tetranychus* is found on a great variety of leguminous species. Its attack is initially visualised as chlorotic points that, upon fusion, become yellowish sectors before finally adopting a tanned appearance. It also produces a web that accumulates dust that adversely affects photosynthesis (Quintanilla, 1978).

The Genetics and Plant Breeding Group and the Agricultural Botany Group of the Faculty of Agronomy of Azul, UNCPBA, Province of Buenos Aires, which are responsible for a breeding programme involving the species *Lotus glaber* Mill., obtained induced autotetraploid germplasm ( $2n=4x=24$ ) by means of colchicine treatment of diploid plants ( $2n=2x=12$ ). The induced tetraploid currently comprises a relatively stable population at ploidy level ( $4x$ ), from which the selection process for productivity traits has been initiated (Barufaldi *et al.*, 2000; Andrés *et al.*, 2001).

Induced autotetraploid cultivars obtained in other forage species such as *Lolium perenne*, *L. multiflorum*, *Lotus uliginosus* (*L. pedunculatus*) and *Trifolium pratense*, in general show good establishment, enhanced resistance to adverse factors, and better persistence and forage production compared to the diploid parents (Ahloowalia, 1971; Carámbula *et al.*, 1994; Evans, 1955; Herrera *et al.*, 1988; Luchini, 1979; Pérez, 1980; Simonsen, 1976).

The presence of the mite was observed in some autotetraploid plants of *Lotus glaber* in both the greenhouse and the field. For this reason it was considered desirable to perform experiments in order to detect tolerance in tetraploid genotypes; preliminary studies for this purpose began in 2003.

### **Objective**

To select individuals that present better behaviour in response to acarus attack, and to achieve their vegetative multiplication as a first step towards verifying their tolerance.

## Materials and Methods

Observations began in July of 2003 on 70 different genotypes used in experiments designed to assess tolerance to water deficit and evaluate the response to Phosphorous fertilisation, since acarus presence was detected on these experiments. For this purpose, a low Phosphorous soil was used (- P; 4 ppm Bray and Kutz Number 1) from the Parish Area, District of Azul, in the Salado Depression, as well as the same soil fertilised with Phosphorous (+P; 100ppm calcium triple superphosphate). The plants, which had been previously maintained in 800g pots, were transplanted to 3000g pots and subsequently subjected to permanent irrigation. Weekly evaluations of the attack were made until December of the same year, whereupon plants that had not been attacked hitherto were selected.

## Results

It was possible to observe that all plants affected from July until October of 2003 had been fertilised with Phosphorous. The same tendency was detected when they were evaluated by their response to rust *Uromyces loti* (M. Barufaldi, personal communication).

After a strong drought coinciding with raised temperatures (November 2003), conditions that benefited the development of the mites, plants suffering attack were detected with and without fertilisation. The formation of abundant web and infection spread among the different genotypes could also be observed.

Of the 22 plants selected in December of 2003, three genotypes were detected in February 2004 that displayed superior behaviour. They will be cloned and later transplanted to the field in order to follow their behaviour during the next cycle.

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