

# PHENOLOGICAL AND PHENOMETRIC VARIABLES OF WHITE LUPINE (*LUPINUS ALBUS* L.) IN SERBIA

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## INTRODUCTION

The white lupine (*Lupinus albus* L.) is a native species of the European Mediterranean region and it is cultivated since antiquity as a green manure, fodder and food grain. Currently, commercial varieties with no alkaloids are cultivated in cold temperate regions and slightly acid soils. A cooperation agreement between the Institute of Field and Vegetable Crops" (IFVC) of Serbia and the Center for Surveying of Agriculture and Natural Resources (CREAN-CONICET/UNC) of Argentina was executed to conduct a joint research on germplasm of *Lupinus*. This presentation examines the relationship between precipitation and phenological and phenometric responses of three accessions of germplasm of white lupine grown in Serbia. The goal was to identify areas with similar rainfall conditions, which will allow the introduction of germplasm in Argentina.

## MATERIALS & METHODS

The trials were conducted in the experimental field of the IFVC (45° 15' N, 19° 49' E, 80 masl), in a Chernosoil soil with pH of 7.4-7.9; N=0.196%; CaCO<sub>3</sub>=5.60%; P<sub>2</sub>O<sub>5</sub> 17.99 mg/100 g; K<sub>2</sub>O=21mg/100g and humus 2.97%. The monthly average temperature (March to July) is 15°C and average precipitation accumulated for that period is 299 mm. Sowings started in early March for the period 2007-2016, in plots of 5 m<sup>2</sup>, with a density of 75-85 seeds/m<sup>2</sup>, and with three replications. The crop cycle was completed between mid and late July. The germplasm accessions were identified as: Bac (from Poland), BG002553 (from Portugal) and Vesnia (from Serbia). The averages of 10 plants selected at random for length of main branches (cm), plant height (cm), number of fruits and grains, total dry weight of the plant (g) and grain yield for the entire plot (kg/ha). The agroclimatic zoning for white lupin was obtained for the Pampas region of Argentina.

## RESULTS & DISCUSSIONS

The trials were conducted in the experimental field of the IFVC (45° 15' N, 19° 49' E, 80 masl), in a Chernosoil soil with pH of 7.4-7.9; N=0.196%; CaCO<sub>3</sub>=5.60%; P<sub>2</sub>O<sub>5</sub> 17.99 mg/100 g; K<sub>2</sub>O=21mg/100g and humus 2.97%. The monthly average temperature (March to July) is 15°C and average precipitation accumulated for that period is 299 mm. Sowings started in early March for the period 2007-2016, in plots of 5 m<sup>2</sup>, with a density of 75-85 seeds/m<sup>2</sup>, and with three replications. The crop cycle was completed between mid and late July. The germplasm accessions were identified as: Bac (from Poland), BG002553 (from Portugal) and Vesnia (from Serbia). The averages of 10 plants selected at random for length of main branches (cm), plant height (cm), number of fruits and grains, total dry weight of the plant (g) and grain yield for the entire plot (kg/ha). The agroclimatic zoning for white

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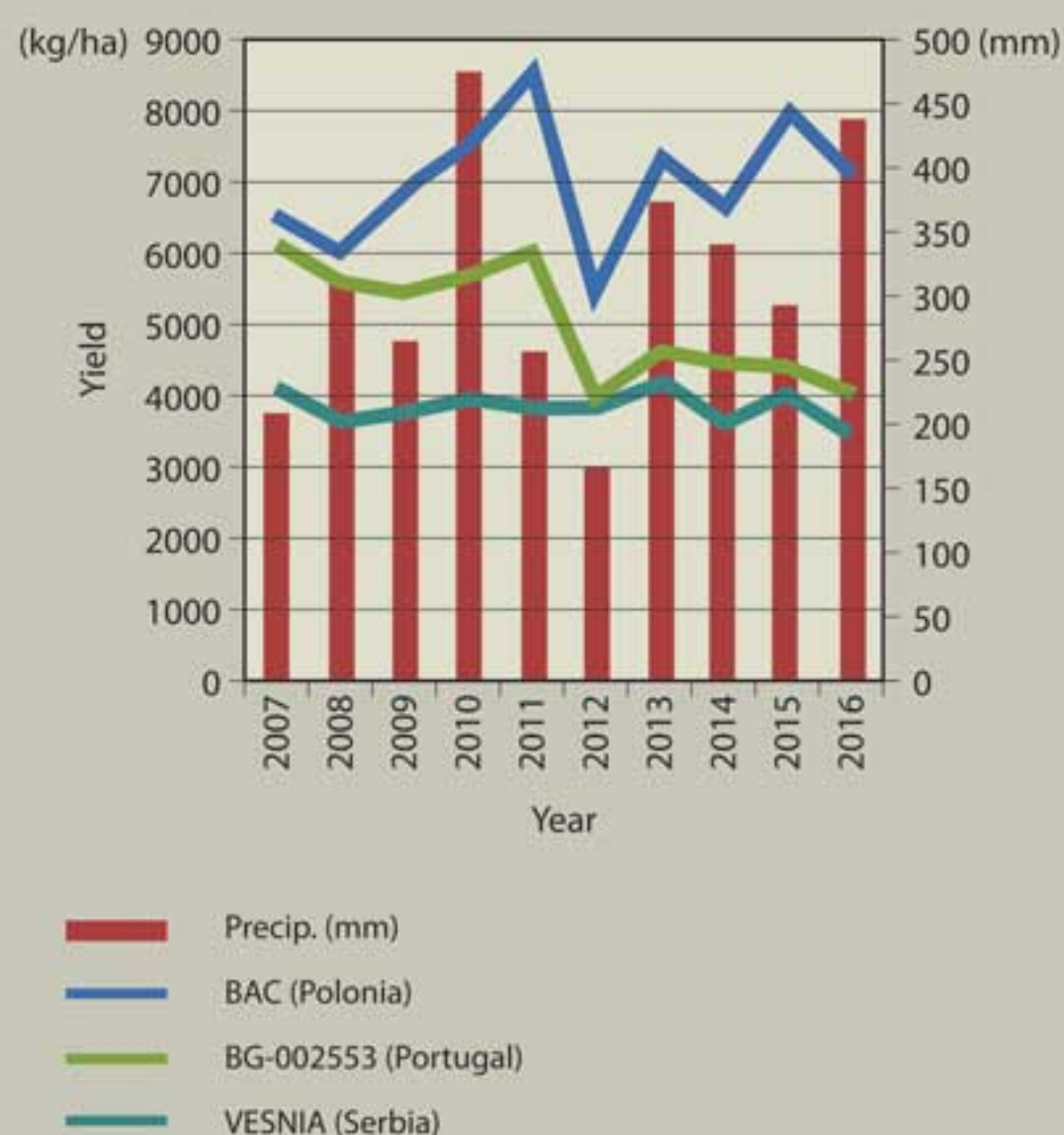
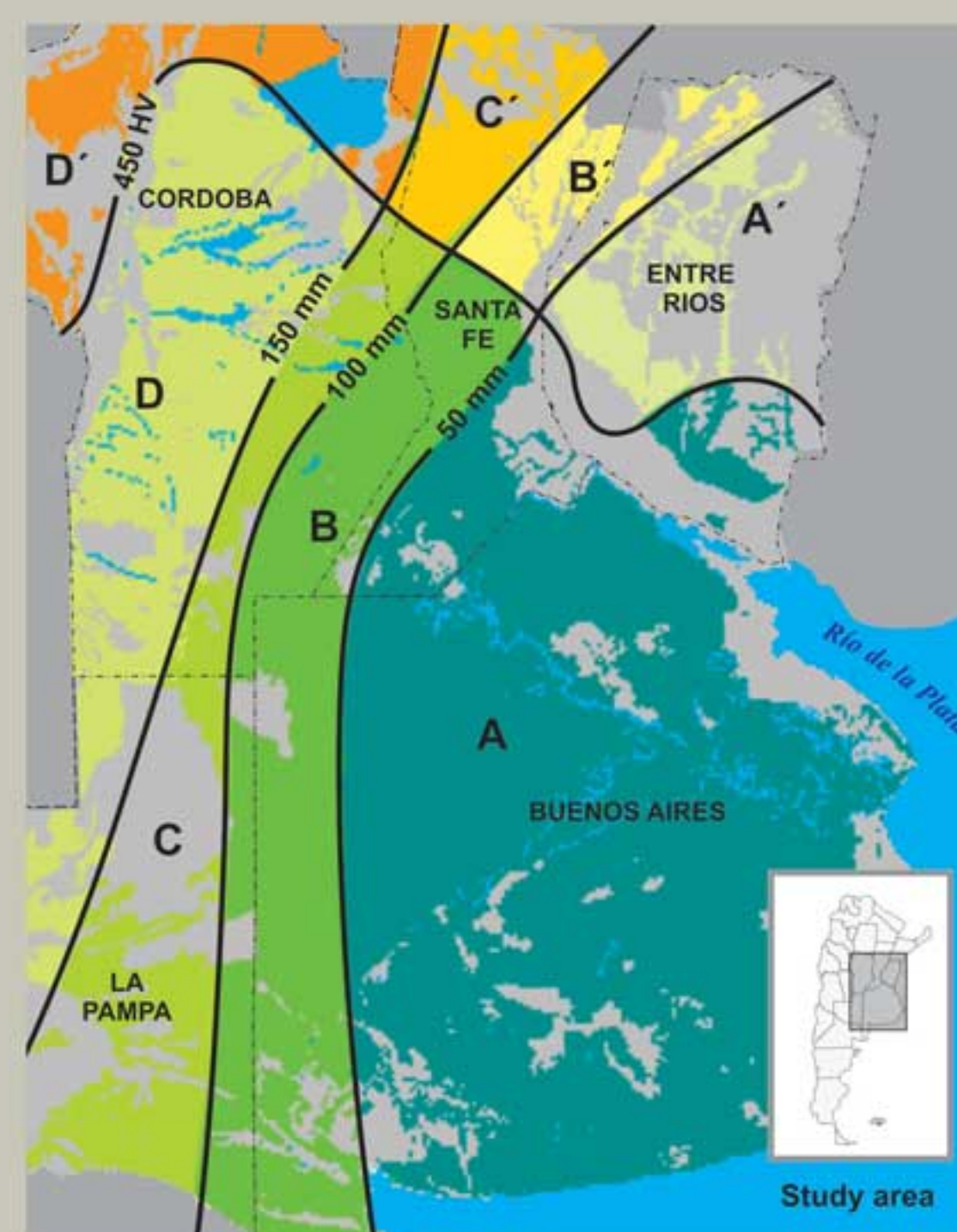


Figure 1. Lupin yield versus annual rainfall in Serbia for 2007/16 period



**CLIMATE**  
**Temperature Requirements:** A-D = Thermally appropriate; A'-D' = Thermally marginal;  
**Irrigation Requirements:** A-A' = None; B-B = Eventual; C-C' = Partial; D-D' = Full


**SOIL**  


Figure 2. Agroclimatic zoning for white lupin in Argentina