



## Analysis of the Factors That Contribute to the Germination of the Alfa (*Stipa tenacissima*) in Ras El Ma Region (Western Algeria) with the Design of Experiments Method

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Received November 08, 2008; Accepted November 28, 2008

**Abstract:** the Alfa (*Stipa tenacissima* L.) is a typically Mediterranean *Poaceae* whose main territory stretches over the Algerian-Moroccan highlands. Its regression threatens the equilibrium of the steppic ecosystem. This study, undertaken within the framework of the safeguard of this natural richness, is an attempt to determine the optimum conditions for its regeneration. Experiments of germination were carried out while varying three parameters: le treatment of the caryopses, the age of the caryopses and the mulching of the ground. The mathematical analysis of the results allows us to express regeneration by the following equation:

$$Y = 14.12000 + 6.00500 * \text{traitment} + 5.45500 * \text{mulching} + 4.68000 * \text{age} + 0.92000 * \text{traitment} - \text{mulching} + 2.44500 * \text{traitment} - \text{age} + 1.59500 * \text{mulching} - \text{age} + 0.78000 * \text{traitment} - \text{mulching} - \text{age}.$$

The coefficients of this polynomial show that the most influent factors are in a decreasing order: le chemical treatment, the mulching of the ground and finally the age of the caryopses. They also show that there is a very strong interaction between the age and the treatment of the caryopses. The germinative capacity of the caryopses of the alfa is enhanced by the synergy of these three factors

**Key words:** Alfa, germination, caryopses, optimum

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