



Evaluation of proteaginous *Pisum sativum* L. cultivars in the region of Castelo Branco

Carlos M. G. Reis^{(1)*} and Paulo Rodrigues⁽¹⁾

¹ Escola Superior Agrária, Instituto Politécnico de Castelo Branco. *creis@ipcb.pt

The pea crop (*Pisum sativum* L.) is a convenient source of plant protein for animal feeding, an area where there is a production deficit in European Union. After obtaining new cultivars through plant breeding it is important to evaluate their agronomic performance in different regions.

This study aimed to evaluate the agronomic performance of 20 cultivars of proteaginous *Pisum sativum* L., listed in the Community Catalogue of varieties of agricultural plant species, in the region of Castelo Branco, Portugal. A field trial was implanted in Escola Superior Agrária de Castelo Branco. Sowing took place on November 2009 in plots with 12.0 m² in a randomized complete block design with four replications. A density of 110 plants per m² was used.

Some parameters related to plant growth and yield were studied, such as seed yield (kg/ha), seed moisture content (%), weight of 1000 seeds (g), number of days to flowering, number of days to harvest, lodged plants (%), dehiscence (%), plant height (cm), dry matter weight, biological weight, number of plants per m², number of seeds per m², height of first pod (cm), number of pods per plant, number of seeds per pod and seed number per plant. The seed protein content was also studied but only for the 10 highest yielding cultivars. The statistical analysis was performed using PASW Statistics 18 software. Analysis of variance (ANOVA) for significance level $p=0.05$ and the mean comparison by Duncan test application were conducted. For some yield components we calculated the Pearson correlation coefficient.

The cultivars studied showed significant differences in all quantitative traits studied. With regard seed yield, there were values greater than 6,000 kg/ha for 10 cultivars (Cartouche, Enduro, Arthur, Audit, Corrent, Alhambra, Cherokee, Isard, Livia and Gregor) and 16 cultivars showed productions above 4,000 kg/ha. However, these results cannot be dissociated from the precipitation values recorded, well above the normal for the region. Among the best cultivars, Enduro and Cartouche are those with the lowest percentage of lodged plants. The cultivars Arthur, Corrent, Cherokee, Livia, Pixel, Ideal, Guifilo, Guifredo, Lumina and Grisel, showed a strong tendency to lodging. In general there is a positive correlation between seed yield and other quantitative variables, except the weight of 1000 seeds. The positive correlations were highest to the number of seeds per m² (0.847), biological weight (0.787) and harvest index (0.857). The seed protein content was similar for the cultivars studied.

Although the results of seed yield are very interesting, it is necessary to conduct additional trials to evaluate the agronomic performance of pea cultivars in order to obtain more consistent results. However, the results allow us to elect a group of cultivars with high seed yield and apparently good adaptability to the region of Castelo Branco.

The present study was financially by the EU within the POCTEP – “Programa Operacional de Cooperação Transfronteiriça Espanha - Portugal”, Project 0186_AGROCELE_3_E.