Evaluation of local onion lines from northwest Spain

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Abstract

Traditional onion (Allium cepa L.) varieties are still produced in certain regions of Spain due to their high quality and acceptance in local markets. The evaluation of morphological traits for 18 local northwestern Spanish onion lines showed the existence of three different groups attending exclusively to bulb shape traits and six classes if we consider bulb shape traits as well as skin and flesh colours. There was a positive correlation between storage quality and percentage of dry matter content. The importance of considering well defined descriptors in order to characterize correctly onion germplasm is also discussed in this paper.

Additional key words: Allium cepa, characterization, dry matter, germplasm, storage quality.

Resumen

Evaluación de líneas locales de cebolla del noroeste español

En determinadas regiones españolas todavía se cultivan variedades tradicionales de cebolla (Allium cepa L.) debido a su elevada calidad organoléptica que hace que tengan una buena aceptación en determinados mercados locales. La evaluación morfológica de 18 cultivares de cebolla recopilados en el noroeste español ha permitido la caracterización de las mismas en tres grupos bien diferenciados si se consideran los caracteres relacionados con la forma del bulbo exclusivamente y seis clases si se tienen en consideración tanto la forma del bulbo como el color de la piel y de la carne. En las líneas estudiadas existe, asimismo, una correlación positiva entre la calidad de conservación y el porcentaje de materia seca. En el artículo se discute también la importancia del uso de descriptores bien definidos en las caracterizaciones de germoplasma de cebolla.

Palabras clave adicionales: Allium cepa, calidad de almacenamiento, caracterización, germoplasma, materia seca.

Introduction

Onions (Allium cepa L.) are cultivated all around the world. Among the great genetic variation, existing worldwide, certain genotypes can even complete their cycle in regions with short summers. In Spain, 900 ha of onion are located in the northwestern part of the country —the total Spanish onion growing area is 22,700 hectares— and it is considered as the fourth vegetable crop in Galicia (northwest Spain), according to either surface area or production (MAPA, 2002). It is mainly a traditional crop in this part of the country were there is an important number of local landraces with excellent organoleptic qualities.

The introduction of new varieties represents an important increase in the number of cultivars available for growers, which is not only an advantage for them but also for markets and processing industries. However, the traditional varieties are still produced in certain regions due to their high quality and acceptance at local and foreign markets (Casalio et al., 1991).

Evaluations of local onion lines have been carried out all over the world. Most of these characterizations are based either on morphological, agronomical or physical and chemical measurements. The chemical measurements most frequently used are soluble solids contents (Jitendra et al., 1992; Ashish et al., 1995; Llamazares et al., 2002), dry matter (Szalay, 1971; Szalay, 1981; Llamazares et al., 2002), piruvic acid (Vavrina and Smittle, 1993; Ashish et al., 1995; Duff et al., 2002; Llamazares et al., 2002) or sugar contents (Lai et al., 1994).

Another important criterion for onion bulb characterizations is storage quality. There are some morphological and chemical traits related to storage...