

NEW SPANISH CULTIVARS OF WHITE KIDNEY BEAN.

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Four new cultivars of white-kidney dry bean (**Siria**,**Celia**, **Elsa** and **Clara**) with gene resistance I to BCMV have been developed by the company Intersemillas INC and the Department of Biotecnology of Polytechnic University of Valencia. They have been registered in the List of Commercial Varieties of the European Community. Common characteristics shared by the most economically important Spanish varietal types are their sensitivity to BCMV and their large-sized seeds. Therefore, improvement objectives should include resistance to BCMV and large seed size, as well as greater earliness and productivity, determinate growth habit and good culinary qualities.

The cultivars **Siria** and **Celia** have been derived from crossing Pinta de León x Aba 36. **Elsa** and **Clara** have been derived from crossings between Blanca Larga x Waf 170 and Blanca Larga x Waf 150, respectively. The cultivars Pinta de León and Blanca Larga are Spanish cultivars that they were selected for uniformity and yield previous to being used in these hybridization programs. Blanca Larga corresponds to habit I, the seed is white, longitudinally elliptical and transversally oval and large in size (400-500 gr/1000 seeds); Pinta corresponds to habit III, the seed is a mottle cream colour, oval both longitudinally and transversally and very large in size (> 500 gr/1000 seeds); both are sensitive to BCMV. Aba 36, Waf 170 and Waf 150 were made available by CIAT; all of them correspond to habit I, with resistance gene I to BCMV; the seed colour is white, longitudinally elliptical and transversally oval; Aba 36 and Waf 170 have a large seed size (400-500 gr/1000 seeds) and Waf 150 is very large (> 500 gr/1000 seeds); all adapted well to established environmental conditions in Spain.

All the original crossings were carried out in 1989. The new cultivars are the result of a genealogical managing, with selection from F2 to F9. Tables 1 and 2 summarise the most noteworthy characteristics of the new cultivars. As control the Spanish cultivar Blanca Riñón has been used. All of the new cultivars belong to habit I and carry gene resistance I to BCMV; with high-yield strength (as a minimum they duplicate the kg/ha of the control); surpass the control in average seed weight, as well as in earliness (10-12 days earlier production).

Given the noteworthy influence of environmental conditions on the characteristics of nutritive and culinary quality, the values in table 2 should be considered as orientative.

Table 1. Vegetative and productive characteristics of the new cultivars and control

CULTIVAR	VEGETATIVE CHARACTERISTICS					EXTERNAL CHARACTERISTICS OF SEEDS					PRODUCTIVE CHARACTERISTICS	
	VIGOUR	GROWTH HÁBIT	B C M V	CYCLE (days)	FLO (days)	COLOUR	LONGIT. SHAPE	TRANSV. SHAPE	WEIGHT (g) (1)	SIZE (cc)	YIELD (Kg/ha) (1,2)	%OF THE CONTROL
SIRIA	HIGH	I	R	107	49	WHITE	KIDNEY	OVAL	0.60	0.49	2427.7	220
CELIA	HIGH	I	R	109	50	WHITE	KIDNEY	OVAL	0.64	0.49	2731.2	247
ELSA	MEDIUM	I	R	109	50	WHITE	KIDNEY	OVAL	0.61	0.51	2503.0	226
CLARA	HIGH	I	R	109	47	WHITE	ELLIPTIC	OVAL	0.62	0.47	2212.9	200
CONTR	MEDIUM	I/II	S	119	53	WHITE	KIDNEY	OVAL	0.50	0.43	1105.9	100

(1) Average size and weight of seeds at 14% humidity

(2) Field trials carried out in León (Spain)

Table 2. Characteristics of culinary and nutritive quality

CULTIVAR	WATER ABSORP. 4 h (1)	WATER ABSORP. 20 h (1)	MATTSON (seg)	SUCR (2)	RAFF (2)	STACH (2)	VERB (2)	INOSIT (2)	LECT (2)
SIRIA	28.1	113.6	1040	1.92	0.52	2.78	0.13	0.60	0.50
CELIA	19.3	108.5	1010	1.87	0.35	2.42	0.12	0.47	0.57
ELSA	42.0	123.8	957	1.73	0.56	2.72	0.18	0.55	0.62
CLARA	29.9	108.5	955	2.21	0.43	2.08	0.08	0.90	0.90
CONTR.	95.6	140.0	995	1.84	0.54	3.01	0.13	0.77	0.53

(1) Percentage of water absorbed against initial weight, corrected to 14% humidity

(2) Sucrose (SUCR), Raffinose (RAFF), Stachyose (STACH), Verbascose (VERB), Inositol phosphates (INOSIT) and Lectins (LECT) content in mg/100 mg.

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