

Announcement of Releases of Advanced Breeding Lines of Lettuce

Advanced breeding lines of crisphead lettuce are available for use by plant scientists and breeders in public and private institutions. These lines were developed by Oswaldo Ochoa, Maria Jose Truco and Richard Michelmore at University of California, Davis. Feedback as to the utility of these lines and other material from the UC Davis lettuce genetics and breeding program is always welcome. When this germplasm contributes to a new cultivar, appropriate recognition should be given as to its origin.

These lines have been developed to provide superior disease resistance to downy mildew in a Salinas horticultural type by backcrossing wild resistant accessions with cv. Salinas as the public domain recurrent parent. To our knowledge, these sources of downy mildew resistance have not been used as parents for existing cultivars grown in California and therefore provide new genes for resistance to downy mildew. Resistant individuals were selected in each generation. These lines are now homozygous for resistance to all Californian isolates tested. Different genes have been introgressed into each type to fragment the selection pressure on the downy mildew pathogen. These genes are also different from those introgressed into the leafy and romaine types. This may increase the durability of the individual resistance genes and prevent virulent variants causing epidemics on multiple horticultural types. These resistance genes will, however, probably be rendered ineffective over time due to changes in the pathogen.

To the extent possible, the Salinas plant type was selected in each generation. Field evaluations in Salinas were made during the last two selfed generations. These lines are close to horticultural types suitable for use in the coastal production areas of California. However, there is residual variation in most of these lines and further selections are required to fix plant type. Trails and selections should be made to determine specific areas and seasons to which these lines are best adapted. Crosses to lines of the same horticultural type are encouraged to provide these resistances in genotypes adapted to additional areas and seasons.

Table1: Reactions of releases to pathotypes of downy mildew.

				Reaction to California Pathotypes			
Release Designation	Donor	Donor Species	Effective Resistance	CaV	CaVI	CaVII	CAVIII
UC07105	PI491226	<i>L. serriola</i>	R41*	-	-	-	-
UC07106	PI491108	<i>L. serriola</i>	R42*	-	-	-	-
UC07107	PI491206	<i>L. saligna</i>	R43*	-	-	-	-
UC07108	PI491208	<i>L. saligna</i>	R44*	-	-	-	-

*: Provisional resistant factor designation. Novel resistant genes to be assigned after further genetic analysis. - = resistant reaction.