

Announcement of Releases of Advanced Breeding Lines of Lettuce

Two advanced breeding lines of red leaf, one green leaf and one romaine lettuce are available for use by plant scientists and breeders in public and private institutions. These lines were developed by María José Truco, Oswaldo Ochoa and Richard Michelmore at the 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 resistance to downy mildew in red and green leaf as well as romaine horticultural types by backcrossing wild resistant accessions with cv. Lolla Rosa for the red leaf type, cv. Grand Rapids for the green leaf type and Parris Island Cos for the romaine type as the public domain recurrent parents. 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. 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 crisphead type. 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.

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. Trials 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.

Red Leaf Type:

Line **UC07100** was derived from *L. serriola* CGN14278 by backcrossing 7 times to cv. Lolla Rosa as the recurrent parent followed by 3 generations of selfing. Molecular marker studies have shown the resistance to be located on linkage group 1 separate from the cluster of resistance where *Dm5/8* is located (CLBR leafy report 2007).

Line **UC07101** was derived from *L. serriola* CGN14278 by backcrossing 7 times to cv. Lolla Rosa as the recurrent parent followed by 3 generations of selfing. Even though this line is derived from the same wild source than line **UC07100**, molecular marker studies of the resistance indicate that this line is carrying a different resistance gene. The resistance is also on linkage group 1 separate from the cluster of resistances where *Dm5/8* is located (CLBR leafy report 2007).

Green Leaf Type:

Line **UC07103** was derived from *L. serriola* CGN14271 by backcrossing 6 times to cv. Grand Rapids followed by 3 generations of selfing. The resistance is located on linkage group 1 separate from the cluster of resistance where *Dm5/8* is located.

Romaine:

Line **UC07104** was derived from *L. serriola* CGN5916 by backcrossing 6 times to cv. Parris Island Cos.