



# Trends in **Horticultural Research**

ISSN 1996-0735



Academic  
Journals Inc.

[www.academicjournals.com](http://www.academicjournals.com)

## **New Romaine Lettuce Lines Launched; Breeding Lines Prove Dieback Resistant, Show Improved Shelf Life**

***California and Arizona, the two largest lettuce-producing states, account for more than 95% of the lettuce grown in the United States. Since the early 1990s, the states' lettuce crops have been subject to "dieback," a disease indicated by symptoms including mottling, yellowing, and death of older leaves, and stunting and eventual death of lettuce plants. Dieback disease, caused by two soil-borne viruses, affects romaine and leaf-type lettuce, often leading to crop loss of 60% or more. Most disturbing is the news that the virus is not effectively reduced using either chemical treatment or rotation with nonhost crops, and the virus can live on in infested soil.***

In an effort to control looming economic losses to the region's vital lettuce industry, scientists are being challenged to develop new breeding lines that provide genetic resistance to the virus. Add in another challenge for researchers: some recently developed romaine cultivars that are resistant to dieback have limited shelf life, decaying quickly when processed for salad.

Three romaine-type breeding lines with resistance to the disease were previously released by the U.S. Department of Agriculture-Agricultural Research Service in Salinas, California. Now, the Salinas breeding program has introduced new romaine breeding lines that prove praiseworthy in terms of both disease resistance and shelf life. Ivan Simko and Ryan J. Hayes from the USDA-ARS in Salinas, Krishna V. Subbarao of the Department of Plant Pathology at the University of California, and Rebecca Grube from the University of New Hampshire introduced

the new romaine lines in a recent issue of HortScience.

SM09A and SM09B are F8 romaine breeding lines of lettuce (*Lactuca sativa* L.) resistant to the dieback disease and with good shelf life. SM09B was selected from a cross between 'Darkland' and PI 491224. SM09A was developed from 'Green Towers' ('Darkland' x PI 491224). "In replicated field trials, the two breeding lines showed complete resistance to dieback. Testing of salad-cut lettuce in modified atmosphere packaging indicated slower decay in the two breeding lines compared with other dieback-resistant romaine varieties," noted Simko.

**Source:** Ivan Simko, Ryan J. Hayes, Krishna V. Subbarao, and Rebecca Grube Sideman. SM09A and SM09B: Romaine Lettuce Breeding Lines Resistant to Dieback and with Improved Shelf Life. HortScience, 2010; 45: 670-672 DOI: <http://hortsci.ashspublications.org/cgi/content/full/45/4/670>