

Strawberry Biotechnology

Stan C. Hokanson

University of Minnesota, Department of Horticultural Science,
1970 Folwell Avenue, St. Paul, MN 55108

John L. Maas

USDA-ARS Fruit Laboratory, 10300 Baltimore Avenue, Beltsville, MD
20705-2350

- I. DEVELOPMENT OF THE MODERN STRAWBERRY
 - A. Origins
 - B. Breeding Goals and Progress
 - II. GENETIC FINGERPRINTING AND GENE TAGGING
 - A. Isozymes
 - B. Randomly Amplified Polymorphic DNA (RAPD)
 - C. Restriction Fragment Length Polymorphism (RFLP)
 - D. Amplified Fragment Length Polymorphism (AFLP)
 - E. Simple Sequence Repeats (Microsatellites) (SSR)
 - III. MAPPING
 - IV. IN VITRO BIOLOGY, GENETIC TRANSFORMATION, AND GENE CLONING
 - A. In Vitro Regeneration
 - B. Genetic Transformation
 - C. Gene Cloning
 - V. FUTURE PROSPECTS
- LITERATURE CITED

I. DEVELOPMENT OF THE MODERN STRAWBERRY

A. Origins of the Cultivated Strawberry

The cultivated strawberry is a relatively new crop. Its origins have been reviewed by Darrow (1966), Hancock (1999), and Wilhelm and Sagen (1974). In short, the cultivated strawberry is the result of chance hybridizations between two octoploid new world strawberry species, the beach strawberry, *Fragaria chiloensis* (L.) Duch., and the scarlet or Virginia strawberry, *F. virginiana* Duch. The large-fruited *F. chiloensis*