

An Overview of the Vegetable Seed Industry

The vegetable sector of the seed industry responds to many local and regional markets, each with its own unique requirements. It must meet consumer and food industry market demands, as well as the needs of vegetable growers. Research and plant breeding are the basis of meeting downstream customer requirements. Vegetable breeders utilize innovative breeding tools to meet the challenge of pests and diseases and to increase yields. They also develop vegetable varieties with higher nutritional values, better taste for the fresh produce market and varieties with improved characteristics for processing.

- The global vegetable seed market: \$5 billion
- U.S. vegetable seed exports: \$500 million
- U.S. vegetable & vegetable product exports: \$7 billion
- U.S. vegetable farm gate: \$11 billion



Research Driven

- ◆ The vegetable seed industry showed responsiveness to specific consumer, producer and food industry requirements such as:
 - Producing more refined products
 - Increased yields
 - Greater disease resistance
 - Improved fruit set
 - More efficient harvesting and processing
 - Enhanced quality and flavors



- ◆ Plant breeding in vegetables responds to many local and regional markets, each with its own unique requirements.
- ◆ Innovation allows a growing understanding of biological systems and plant genetics to capture genetic diversity.
- ◆ Molecular and genetic tools have accelerated development of improved crop varieties.

Significance of the Global Movement of Vegetable Seed

- ◆ Integral part of variety development and essential to the vitality of the industry
- ◆ Critical for the development of:
 - Seed lines used in research and development
 - Parental and commercial seed production
 - Processing and packaging of commercial seed
- ◆ Parental seed is the precursor of a wide array of varieties making its value and importance extremely high.



Tomato Example



A single seed company could be moving thousands of different—and distinct—seed varieties at one time

Innovative Tools Help Plant Breeders Solve Problems More Efficiently

- ◆ Developing new tools for plant breeding is essential to addressing the challenge of limited genetic diversity for important traits such as:
 - Resistance to pathogens and diseases
 - Water and nitrogen use efficiency
 - Drought tolerance
 - Improved nutrition and taste
- ◆ Creating inventive tools that are precise, yet flexible to:
 - Increase specificity and efficiency of breeding
 - Decrease time and cost
 - Increase diversity for breeding programs
- ◆ Genome sequencing and marker assisted breeding (gene-based breeding) allow the integration of field and genetic data so breeders can make decisions more efficiently.
- ◆ Greater understanding of how plant genes work together.

