

Edamame, Vegetable soybean

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Vegetable soybean or edamame is a specialty soybean harvested as a vegetable when the seeds are immature and have expanded to fill 80-90 percent of the pod width. The seeds of vegetable soybeans are larger, sweeter and more tender than grain soybean. Because of its excellent nutrition and slightly sweet, mild flavor and nutty texture, with less objectionable beany taste, it is preferred over conventional grain soybeans as a fresh green bean (pea).

Active public research with vegetable soybeans occur in Japan, China, Korea, Sri Lanka, Taiwan, and Thailand. Although in the USA vegetable soybean research has been conducted for many years, mostly in the west, it was only a few years ago that Americans began to learn about vegetable soybeans, and there has been little commercial production, with little or no resources being available for agronomic decisions on vegetable soybean production in New England.

In commercial production for fresh bean seeds vegetable soybean is harvested at the R6 stage of development (fully developed green bean). Typically, they are either shelled prior to cooking, or are cooked in the pod in salted water as a snack food, and shelled by the consumer during eating. In the United States, where the average consumer is not familiar with vegetable soybean, there is a new market potential is for shelled vegetable soybeans. Some companies are canning the immature seeds. Like most "new" foods, vegetable soybean may require repeated trials to learn how to grow and use and to appreciate this as a vegetable.

In 2003 we are screening 20 varieties or seed lines, with varying seed size and seed color, for adaptability of the varieties (lines) with different origins and sources to conditions in Massachusetts. Two density studies are being conducted, one with three densities for one variety planted in late May, and another variety with five densities was planted on June 16, 2003 at the UMass Agronomy Research Farm in order to examine the general response of seed yield to plant density and planting date. We hope to determine the effect of planting date, plant population and fertilizations, on yield and in future years, processing quality.

With sufficient funding support we will further investigate the effect of management practices on pod setting, harvest period, quality (pod color and sugar content) and flavor (sweet and savory) after harvest and assess different processing treatments (chilled fresh pack, chilled and frozen, blanched and frozen), with a sensory evaluation for appearance, flavor, and texture. Marketable yield and percent marketable will be determined. Acceptability for growing by farmers, and taste by the consumers will be surveyed.