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Factsheet

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USDA Coexistence Fact Sheets
Specialty Farming

Coexistence, as defined in a report of USDA's Advisory Committee on Biotechnology and 21st Century Agriculture (AC21), is the concurrent cultivation of conventional, organic, identity preserved (IP), and genetically engineered crops consistent with underlying consumer preferences and farmer choices. In other words, it is the existence of different types of production at the same time and in the same area. Market demands on U.S.-grown crops are increasing, and it will take products from the organic, conventional and biotechnology sectors to meet those demands. It will also take smaller specialty markets to provide produce and niche products to a consumer base that is looking for more variety in their food.

Specialty Farming Defined

USDA defines specialty crops as fruits and vegetables, tree nuts, dried fruits, horticulture and nursery crops that are cultivated or managed and used by people for food, medicinal purposes, and/or aesthetic gratification. These crops may be organic, conventionally bred, or genetically enhanced through biotechnology.

Today, biotech seeds are available for eight crops, including three specialty crops: papaya, sweet corn, and squash. Some biotech crops, like tomatoes and potatoes, have been approved for planting but are not grown in the United States. Other biotech crops are nearing regulatory approval and may be commercially available in the near future.

While some specialty crops are unique, such as purple cauliflower or pluots, they are not the result of biotechnology. Rather, they have been developed through other breeding techniques.

A Historical Look at Papaya

Because specialty crops, like other crops, may be susceptible to pests or diseases, biotechnology has sometimes been used to create modifications in specialty crops. One important example is papaya.

Since the 1940s, the Hawaiian papaya was susceptible to the damage caused by the Papaya Ringspot Virus (PRSV). PRSV damages the papaya plant causing deformations and eliminating fruit production. The virus was transmitted by pests that fed on the fruit. Papaya farmers tried different ways to control the virus – from spraying insecticides to control the pests transmitting the disease, inoculating plants with a small portion of the virus to offer natural resistance, to even removing infected plants altogether. In 1992, Hawaii was producing 53 million pounds of papaya each year; however, PRSV cut that production in half by 1998, and the outlook was bleak.

Farmers and researchers began to turn to biotechnology as solution. By using a gene from the virus itself and inserting it into the papaya, researchers created natural resistance to PRSV. After several years of testing the modified plants and undergoing regulatory approvals, the Hawaiian papaya industry began using the biotech variety. Different biotech varieties were also developed, and one – the Rainbow Papaya – was able to yield 25,000 pounds of fruit per acre annually, nearly 25 times more than a non-GE variety that was susceptible to PRSV. By 2001, the Hawaiian papaya industry was producing 46 million pounds of fruit annually. Today, nearly 70 percent of the Hawaiian papayas grown are genetically engineered. GE papayas help organic PRSV susceptible papayas avoid the disease by reducing the amount of PRSV in insects that transmit the virus.

The Markets for Specialty Foods

Some specialty crops are critical components to a healthy, balanced diet, while others can also be used for medicinal purposes. Additionally, nursery and horticulture plants are enjoyed by many people in the U.S. for purely aesthetic reasons.

Coexistence: What it Means for Specialty Farmers

While farmers who grow specialty crops may not be concerned with commingling, they may be concerned with pesticide drift from neighboring farms that may damage their crops. Good communications with neighboring farms and a reliance on best practices can help limit any damage from pesticide drift. However, as technology continues to advance in agriculture, more specialty crops may be grown with biotech seeds. When that occurs, farmers will need to take care to minimize the risks of commingling, using best practices ideally suited for their crop.

The Future of Specialty Farming

Specialty crops and their growing future are directly reliant on the growing demand for fruits, vegetables, herbs and tree nuts by consumers. As more consumers are adopting these foods into their daily meals, the markets will continue to rise. Additionally, the growing interest in medicinal herbs and horticulture will drive the future of those specialty crop segments.

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