

Apple Total Quality Assurance Steps to Ensuring Food Safety

Throughout history apples have played an important and significant part in the diet of Americans. Fresh apples, apple cider and other apple products are still favorites of people of all ages. Kentucky apple producers are able to directly provide consumers with fresh, flavorful apples and apple products. New dietary recommendations favor diets rich with fresh produce. This has Americans eating more fresh fruits and vegetables than the previous generation.

Along with the rise in fresh fruit and vegetable consumption is a rise in the concern of food safety. Being assured that our growers use pesticides only when necessary as well as preventing contamination with harmful microbes is of key importance for consumers as well as producers. This publication will outline the primary steps that apple growers and cider producers in Kentucky are taking to lessen the chances of food born illness. Also addressed are steps that consumers can take to insure the safety of their food.

IPM/PESTICIDE USE

Pesticides have been around in some form or another for centuries. Over time they have been seen as both savior and demon. Over use in the mid 20th century led to a rethinking of pest control tactics and procedures. The concept of IPM or integrated pest management was born out of this time of re-examination. IPM is a way of thinking that involves considering all costs and benefits associated with pesticide application. Farmers that use IPM techniques no longer spray on a calendar schedule for insect pests, but now monitor their fields to determine if pest levels are high enough for insecticide applications to be cost effective. Weather data is monitored to schedule sprays for the prevention of some key diseases. In addition, pesticides have been developed that target more specific pests or groups of pests thereby lessening the chance of causing harm to non target species. Something as simple as orchard cleanup can lessen next years pests by removing overwintering places for key pests thereby lessening next years initial population.

Since 1991, apple growers in Kentucky have been using IPM to manage insect pests. This involves the use of cultural controls, resistant varieties, computer-based weather monitoring, pheromone trapping, regular orchard monitoring, and the use of pesticides on an as-needed basis. Growers using IPM to produce apples use approximately one third less pesticide to produce fruit of equal quality while maintaining yields. That is not only a savings for farmers in terms of expense, labor and time, it means the apples of today have been exposed to 1/3 less pesticides than their non-IPM counterparts. Used judiciously, pesticides enable farmers to bring to market the quality produce that consumers insist upon.

MICROBIAL CONTAMINATION

Microbes affecting food safety have always been with us. Changes in consumer habits, handling procedures, grower practices and even changes in the microbe itself can contribute to an increase or decrease in the number of cases of food borne illness. One such culprit is *E. coli* O157:H7. This is a new strain of a very common bacterium. More virulent than its predecessor, O157:H7 has the ability cause an infection where others would fail. This is because fewer individual bacteria are required for

infection to take hold. Once started, the infection is notably difficult to control and more life threatening than that caused by other bacteria, even *Salmonella*. This bacterium has been shown to survive over 4 months in water troughs, can survive freezing and can readily survive in areas of low oxygen such as soils, water and manure. O157:H7 has been found in the manure of cattle, deer, sheep, dogs, cats, horses, goats, and birds. These animals show no symptoms, there is no way to tell if they carry the bacterium by looking at them.

Kentucky apple growers and cider producers have been taking steps to insure that their produce is free from both pesticide and microbial contamination and safe for consumers. Cultural practices such as proper manure storage, cleaning and sanitizing of both fruit and equipment, worker education and cleanliness, as well as using only fresh, sound fruit for cider production are some ways in which this is accomplished.

Over the past several years more and more cider producers are turning to pasteurization as a way of insuring the safety of their product. Pasteurization works by exposing the cider to temperatures above which harmful microbes cannot survive, much the same as home canning and preserving. This, coupled with an expiration date helps to insure the safety of the product.

CONSUMER HABITS

Insuring food falls not only in the hands of producers. Once the produce is brought home there are certain simple steps that can be taken to insure clean, contamination free produce.

- * Select only fresh produce free from dents and bruises
- * Thoroughly washing and dry produce, removing any traces of dirt
- * Store produce promptly after cleaning
- * Never eat unwashed produce
- * Refrigerate cider and apples to preserve quality and slow any microbial growth
- * Monitor expiration dates on cider containers

These, common sense measures are more important today than ever before. Food safety is a concern shared by all, producer and consumer alike.