Contra Costa County Agriculture and Weights & Measures Newsletter

Winter 2010

Inside this issue:

This is a part of a series of quarterly newsletters designed to inform growers in Contra Costa County about issues important to the Agricultural community. We welcome your questions and comments about any topics in this newsletter as well as suggestions for future newsletters. Contact us at:

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Reducing Microbial Contamination

Outbreaks of foodborne illnesses make news headlines on a regular basis. Incidents of *Salmonella* found on tomatoes and cantaloupes, *E. coli* 0157:H7 on lettuce and in apple juice, hepatitis A on strawberries, and *Cyclospora* on raspberries have shaken consumer confidence in the safety of fruits and vegetables.

From planting to consumption, there are many opportunities for bacteria, viruses, and parasites to contaminate produce. On the farm, soil, manure, water, animals, equipment, and workers may spread harmful organisms. Once contaminated, removing or killing pathogens on produce is very difficult. However, there are reasonable steps that growers can take to reduce these risks.

Before planting, growers can help avoid

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In 2008, California lettuce was linked to an outbreak of *E. coli* 0157:H7 illnesses.

contamination by selecting crops and fields carefully. Know the routes and handling of surface water sources, especially if the water passes close to sewage treatment or livestock areas. Identify potential sources of contamination that could affect irrigation water, such as runoff or drift from animal operations. Maintain wells so they are protected from run-off. For irrigation district water use, be familiar with the supplier's microbial monitoring program.

During production, do not permit grazing of livestock near produce fields. Also, try to minimize the presence of wild animals that could carry diseases. When using surface water for irrigation, test quarterly for pathogens. Use clean, potable water for any foliar sprays, especially within two weeks of harvest. Where feasible, use drip irrigation to reduce crop wetting.

The improper use of manure can be a major risk factor contributing to foodborne illnesses. Pathogens such as *E. coli* 0157:H7, *Salmonella*, and *Campylobacter* can be present in manure slurry and soil for up to three months or more, depending on temperature and soil conditions. *Listeria* may survive on vegetables growing in the soil, even though it may not survive in the soil itself. *Yersinia* may survive in soil for up to 330 days.

Properly composted manures and biosolids are not a source of pathogens on fresh produce. Learn methods to compost manure in order to ensure pathogen reduction and elimination.

Manure from grazing animals can be a source of foodborne illness pathogens.

When harvesting and packing, workers must follow safe food handling practices to help prevent contamination of produce.

Maximize the amount of time between the application of manure to production areas and harvest. Whenever possible, incorporate the manure into the soil. Keep records of application rates, sources, and dates. Do not sidedress with mulches, slurries, or "teas" containing fresh manure (it is ok to sidedress with mature, well-cured composts or compost teas).

Attention should be paid to worker hygiene in the field and the packing house. Educate workers on sanitation and safe food handling practices. Employees who pick, sort, grade, or pack produce ***must*** wash their hands after using the restroom and before handling fruits and vegetables. Require that sick employees be assigned to jobs that do not involve food or food surface work. Provide bandages to workers with cuts or lesions on parts of the body that may come into contact with fresh produce. Follow Cal-OSHA requirements and maintain clean restrooms with soap, clean water, and single-use towels. At U-Pick operations, encourage customers to wash their hands prior to entering fields and provide them with clean and convenient restrooms with soap, clean water, and single-use towels.

During harvest, remove excess soil from produce and bins while in the field. High pressure wash and sanitize bins prior to harvest and clean bins

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Develop and document a system of cleaning and sanitizing food contact surfaces.

daily during harvest. Avoid standing in bins during harvest to reduce pathogens spread by shoes. Avoid bruising of produce and do not harvest damaged, decayed, or wormy fruit.

Use potable water for all washing, dipping, processing and ice making operations. Maintain clean water in dump tanks by sanitizing and changing water regularly. If possible, use antimicrobials in wash water and routinely monitor and record their levels. Cool produce quickly to minimize growth of any potential pathogens. Do not overload coolers and be sure to store produce at appropriate temperatures.

Clean and sanitize loading, staging, and all food contact surfaces regularly. Exclude all animals, especially rodents and birds from the packing house. Check, clean, and pre-cool trucks prior to loading. Ensure that all refrigeration equipment is working properly.

For more information, go to the University of California Agriculture and Natural Resources website at http://ucgaps.ucdavis.edu/.

This article was adapted from *Reduce Microbial Contamination with Good Agricultural Practices*, a brochure developed by Cornell University and *Key Points of Control and Management of Microbial Food Safety*, a brochure produced by the University of California Vegetable Research and Information Center.

Pesticide Regulation in California

Since the first pesticide-related law was passed in the state in 1901, California has developed a series of laws and regulations designed to control every aspect of pesticide registration, quality, sales, and use. Today, California is considered to have the most comprehensive pesticide laws in the world.

The earliest pesticide laws were written to protect growers from fraud. As in the case of many patent medicines of the time, pesticide manufacturers would make wild claims that their product could cure every pest problem known to man. In fact, many products were either adulterated with useless ingredients or would actually damage the plants to which they were applied.

California's first pesticide law, passed in 1901, charged the Director of the Agricultural Experimental Station (part of the University of California) with ensuring the quality of "Paris Green", a commonly used, arsenic-based insecticide. The State Insecticide and Fungicide Act of 1911 extended this to other pesticides and was essentially a labeling law to protect consumers from ineffective products and deceptive labeling. The law had a provision requiring pesticides to be registered with the University of California before they could be sold. This was the first time pesticide registration had been required in the

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Spraying an arsenic-based pesticide for fruit fly control in Hawaii in 1912.

United States. It would be another 36 years before the federal government would enact a similar law.

In 1921, the Economic Poison Act transferred responsibility for pesticide registration from the University of California to the newly created California Department of Agriculture (CDA). The Act expanded the state's authority beyond just the manufacture and sale of pesticides and enabled the CDA to also regulate pesticide use. Additionally, the law established a registration review process requiring manufacturers to submit product data along with a sample to be tested for quality. Any pesticide that did not meet the established standards was denied registration. Eight years later an amendment to the law allowed the CDA to require a "practical demonstration as may be necessary" in order to test the effectiveness of a pesticide.

In the mid 1920's, public outcry from Great Britain against arsenic-treated fruit imported from the United States led to the establishment of the first federal limits for pesticide residues on apples and pears. California followed suit in 1927 by passing the Spray Residue Act to limit allowable arsenic-based pesticide residues on all fruits and vegetables. Later, the law was amended to include lead, fluorine, and copper-based pesticides. The goal of the law was, in part, to promote the marketing of California produce by ensuring none would be found with excessive pesticide residues.

photo courtesy of the Contra Costa County Historical Society

A pesticide application made to an orchard in Pleasant Hill in the early 1900's.

DDT, which was developed during World War II, was one of the first synthetic organic pesticides used in the "Green Revolution".

Prior to World War II, there were only about 30 pesticide active ingredients in use, most of which were arsenic or copper-based compounds. However, in the 1940's, many new synthetic organic pesticides were developed for a variety of uses. These pesticides were viewed as miracle chemicals because they allowed growers to increase crop yields and reduce labor costs. As a result, there was a dramatic increase in pesticide use during the 1940's "Green Revolution".

Along with the increased use came problems. Improper applications led to incidents of pesticide drift and worker illnesses. So in 1949, the first California regulations were passed to establish restrictions on certain pesticides known to have the potential to cause injury to people, crops, and the environment. California's regulations covering both pesticide handling and residue-monitoring continued to be refined throughout the 1950's to address the increasing number of new pesticides on the market.

The publishing of the book, "Silent Spring", by Rachel Carson in 1962 sparked a new awareness of the impact of pesticides on human health and the environment. Both state and federal laws were passed to increase scrutiny on the use of pesticides. By the beginning of

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the 1970's, California had established rigorous standards for the registration of pesticides. For each pesticide, manufacturers had to submit detailed information including both health and environmental effects. The CDA also was directed to evaluate pesticides that were already registered and eliminate those that posed a danger to agriculture or the environment.

The legislation also gave the CDA, and its sucessor the CDFA (California Department of Food and Agriculture) increased authority to restrict pesticide use. Field inspection procedures were standardized and their scope widened to include all aspects of pesticide use, worker safety, licensing, sale, record keeping, storage, and disposal. California's worker safety program was used as a model by the federal government when it began to develop its own national worker protection standard in the 1980's.

The California Environmental Quality Act (CEQA) that passed in 1970 had a big impact on pesticide use in the state. In 1976, the State Attorney General issued an opinion that the state's pesticide regulatory program, including grower pesticide permits, had to comply with CEQA. This meant that county agricultural commissioners were required to prepare an Environmental Impact Report (EIR) for each and every restricted materials pesticide permit

The protection of fieldworkers and employees who handle pesticides is an important part of California's pesticide regulatory program.

Most pesticide inspections are done by staff from the county Agriculture Departments.

they issued. Of course, this was not feasible, so an abbreviated environmental review process was developed. It consisted of CDFA's pre-registration evaluation of pesticides along with the county issued grower permits and grower's notices of intent for restricted pesticide use.

The California Environmental Protection Agency (Cal/EPA) was created in 1991 to unify the authority for all environmental-related regulation into a single agency. Besides pesticides, the agency oversees air and water quality, waste management, and hazardous substances. In addition to regulating pesticide registration and use, the Cal/EPA's Department of Pesticide Regulation (DPR) also handles issues of pesticide incidents affecting water, air, soil, and biological organisms.

Although DPR handles pesticide registration, the enforcement of state laws regarding pesticide use is usually performed by the county Agricultural Departments. Contra Costa County Biologists issue pesticide permits; review pesticide use reports and notices of intent; and monitor pesticide use by growers and businesses by inspecting pesticide applications, equipment, records, and storage. We also evaluate and monitor pesticide applications on environmentally sensitive sites. In 2008, Contra Costa County Biologists inspected over 200 pesticide applications and mix/load operations.

Division of Weights & Measures

The Contra Costa County Division of Weights and Measures protects buyers and sellers by promoting fair packaging and by checking commercial weighing and measuring devices for accuracy. After all, businesses don't want to give away products for free any more than consumers want to pay for products they didn't get. Weights and Measures affects everyone. Whenever people buy any kind of goods, property, or service, some type of weights and measures is involved.

The Division is a part of the Contra Costa County Department of Agriculture and works under the direction of the Contra Costa County Board of Supervisors and the CDFA Division of Measurement Standards. The Contra Costa County Division of Weights and Measures is responsible for operating many statewide programs here through a combination of education, outreach, and enforcement.

Contra Costa County Weights and Measures Inspectors test a large variety of devices for accuracy. There are scales ranging from jeweler's scales used for tiny gemstones all the way up to scales that can weigh a fully loaded railroad car. Measuring devices also come in many different types and capacities. There are meters for measuring gases such as propane and for liquids such as gasoline. There are length measuring meters used for purchases of wire or fabric. Taxis have meters that measure time as well as distance. There are even meters used to measure electricity.

An Inspector using 1,000 pound test weights to check the accuracy of a cattle scale.

Liquid dispensing meters, such as gasoline pumps, are tested using standard volume containers called provers.

You can be sure commercial scales and meters are accurate because a Weights and Measures Inspector has tested them. Before they can be put into commercial use and regularly after that, devices are inspected to make sure they are accurate and are of a type approved for that use. After the inspection, the Weights and Measures Inspector seals any adjustable parts that might affect how they perform. Each commercial scale or meter that has been inspected will have a paper County seal attached to the front of it.

Weights and Measures Inspectors check that packaged commercial products actually contain the quantity stated on the label. If a product comes up short weight or quantity, the Inspectors will investigate more packages of that brand. Inspectors also check scanners at all stores that use this type of device for pricing products at the register. The scanners are checked for accuracy and make sure the price charged to the customer is the same as the lowest posted or advertised price. Over the last several years, the Contra Costa County Division of Weights and Measures has investigated a number of cases where businesses were overcharging customers. Many of these

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cases resulted in the business either being fined administratively by the Division or being prosecuted by the District Attorney.

There are fair packaging regulations that cover many aspects of labeling and packaging so consumers will know clearly just what they are getting. The regulations enforced by County Weights & Measures Inspectors prohibit deceptive packaging such as false bottoms and sidewalls. The weight of a product's wrappings or container cannot be included in the stated weight of the commodity. The fair packaging regulations also specify the type of information on a label and even the way the label is written and placed on the package. Signs and advertising are regulated too. Signs advertising gasoline and other petroleum products must meet certain standards as to content, placement, and legibility. These standards help to eliminate such misleading practices as "bait and switch" advertising, and advertising only the lowest of several fuel prices.

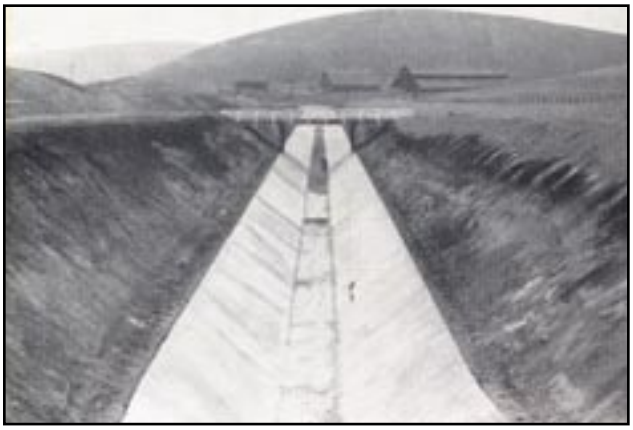
The Contra Costa County Division of Weights and Measures also investigates consumer complaints. Many times these involve receiving short weight or quantity in a purchased commodity or having an advertised discount not taken off at the register. Other types of complaints regard deceptive packaging or advertising, overcharges by taxi companies, inaccuracies by recycling companies, contamination of petroleum products, etc.

When you see this type of seal on a commercial device, it shows that it has been tested for accuracy by a Contra Costa County Weights & Measures Inspector.

Contra Costa County Yesterdays

In the early 20th century, growers in Pittsburg and Antioch irrigated their crops using water from the Suisun Bay. In those days, the water flow from the Sacramento and San Joaquin rivers was high enough to keep it mostly fresh. But by the mid 1920's, upstream river diversions had made the water too salty. This was one of the reasons the Contra Costa Canal was among the first projects built by the Central Valley Project (CVP).

The CVP was designed to protect the Central Valley from devastating floods and droughts. It was authorized by the California Legislature in 1933 but remained unfunded due to the financial crisis caused by the Great Depression. When federal funding was authorized for the CVP in 1935, construction of the Contra Costa Canal finally began in 1937. It started delivering water in 1940 and was completed in 1948 after being delayed by World War II.



A section of the Contra Costa Canal near Oakley around 1940.

The Contra Costa Canal is 48 miles long and begins at Rock Slough near Knightsen. It goes through Oakley, Antioch, Pittsburg, Bay Point, Clyde, Pacheco, Concord, Walnut Creek, and Pleasant Hill and ends at the Terminal Reservoir in Martinez. It also has a connection with the Los Vaqueros Reservoir and with Old River near Discovery Bay via pipelines. Water from the canal is used by various water treatment facilities and raw-water customers in north county.

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