Division of Inspection Services
2011 Annual Report
OUR MISSION

To provide professional services that support and contribute to a safe, abundant, quality food supply, environmentally sound agricultural practices, and an equitable marketplace for California agriculture.
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EXECUTIVE SUMMARY

“As our case is new, we must think and act anew”
- Abraham Lincoln

In 2011, the Division of Inspection Services took an old concept – and a new opportunity – to soaring heights. In an effort to embrace the growing curiosity of today’s consumer, and engage in the prospects created by the Slow Food Movement, the Division set its sights to redefine direct marketing processes within the diversity of our food systems.

Today more than ever, consumers are seeking a broader and deeper understanding about the source of their food. ‘Local,’ ‘farm-centric,’ and ‘community’ have all taken on a new meaning, whether you’re shopping at your neighborhood farmers’ market or subscribe to a weekly Community Supported Agriculture (CSA). For some “foodies,” this is an old way of life. For others, it is a new trend – regardless, it all stems from the agricultural arts.

Part of the Division efforts to embrace the diversity of consumer interests and help to establish a ‘level playing field’ dealt with creating a Certified Farmers’ Market Ad Hoc Committee. In the fall of 2011, the committee was tasked with providing an improved system to handle product which is directly marketed to the consumer. Examples of this being regional Certified Farmers’ Markets; school, community and culinary gardens; CSA boxes; and enhancing access opportunities across the state to all Californians, including food banks and sheds.

While the Slow Food Movement incorporates goals of sustainable foods and promotion of local small businesses, this ideology is supported and paralleled by a political agenda directed to engage and embrace all sizes of agriculture. Farmers still feed the world and whether you source from your neighbor’s backyard, or through the modern-day large distribution channels, there will always be a need to feed the growing population of the world.

While food access remains a leader, food safety always remains at the head of our mission at the Division. The Federal Food Safety Modernization Act was passed into law January 4, 2011; industry awaits the release of the regulations. The Division has increased its effort to engage with federal sister agencies to establish state and federal partnerships, as needed, to help provide ongoing regulatory efficiencies and enhanced communication for the benefit of the industry. Meanwhile, additional food safety efforts embrace the current Leafy Green Marketing Agreement as a comparative model to establish a new audit program for cantaloupe producers in response to the Colorado based Salmonella outbreak in fall, 2011. Quantitative audit metrics help ensure that what is produced in California is done in a manner that provides a safe product for consumers.

In addition to being mindful about food safety, more emphasis has been focused on producing goods in an agronomically sound
manner. The Fertilizer Research and Education Program (FREP) established in 1990 has twenty years of research including agronomic practices and fertilizer application. Currently, the historical data is being summarized and is anticipated to be released in a public database by summer 2012.

Lastly, in an effort to contribute to a sustainable future, measures were taken to help reduce the carbon footprint of our Center for Analytical Chemistry lab. Through the help of grants, the lab generated power use efficiencies using green technology.
Program Summary

The mission of the Center for Analytical Chemistry (CAC) is to provide impartial, timely, accurate, and cost effective analytical services. The CAC supports the enforcement activities and research programs of other agencies. CAC’s stakeholders and clients include the US Department of Agriculture (USDA), the Environmental Protection Agency (EPA), the California Department of Pesticide Regulation (CDPR), the Department of Boating and Waterways, the Food Emergency Response Network (FERN) and various programs within CDFA including the Feed, Fertilizer, and Livestock Drugs Regulatory Services Branch (FFLDERS), the Inspection and Compliance Branch, the Plant Health and Pest Prevention Services and the Animal Health and Food Safety Services Division.

The CAC is a state-of-the-art chemistry laboratory with facilities located in Sacramento and Anaheim, California. The Center consists of two main sections - Food Safety and Environmental Safety. The Center also has an independent Quality Assurance unit that is responsible for the Center’s Quality Management System. The CAC is ISO-17025:2005 accredited by the American Association for Laboratory Accreditation (A2LA) organization.

To establish and maintain the highest possible quality of our services, our staff regularly receives training from experts in the fields of chemical analysis. In the past year, the CAC has hosted many workshops and seminars offered by representatives from instrument manufacturers and vendors. These seminars are invaluable as staff is exposed to the latest advances in analytical instrumentation. In addition to striving to remain technically current, the CAC also keeps abreast of environmental issues that affect our clients’ missions to ensure the program’s relevance. The Center has offered the facility as a forum for stakeholders and organizations to discuss issues concerning industry’s evolving needs and how the CAC can adapt to deal with these challenges.
Past challenges and future goals

In 2011, the CAC continued to face the challenges of reductions in the workforce and funding. To maintain the same level of quality service, the Center recognizes the need to constantly improve program efficiency. Flexibility in staff assignments continues to be a key part of this effort. Some relief came when the total number of furlough days was reduced, a Budget Change Proposal was approved which increased funding, and the opportunity to fill a vacant position in the Environmental Analysis Laboratory. An Environmental Scientist was hired, which has been very helpful, but the cross-training of staff in different analyses continued. Timely review of data packages and the development of new analytical methods requested by clients were challenging throughout 2011 as all CAC staff were furloughed three days each month for a large portion of the year. The Center continued to meet its workload with the reduced work hours.

Every CAC laboratory has made improvements to its analytical methods to conserve resources and increase sample throughput while improving the quality and reliability of results. Sample batch size was increased and research was conducted to improve analytical method efficiency. For example, the Food Safety Section adopted the QuEChRS (Quick, Easy, Cheap, Rugged, and Safe) sample preparation method last year in response to an extended worldwide shortage of the solvent acetonitrile. The QuEChRS method uses much less acetonitrile than the former extraction method, resulting in a 30% cost savings compared to the old method. Extraction time per sample is also reduced by 70%.

2011 Highlights and Accomplishments

In spite of these challenges, the CAC enjoyed many highlights in 2011. A new roof for Building B, new flooring, and an overhaul of the HVAC and security systems at the Sacramento Laboratory all enhanced staff comfort, safety, and morale during a difficult year.

The CAC is committed to an active community outreach and education program. Employees participated in many educational activities such as local and regional science fairs, presentations at local colleges, recruiting activities, and the annual State Scientists Day at the State Capitol.

The Accela UPLC acquired by the USDA-PDP this year. This system allows for shorter analysis times and potential improvements in instrument sensitivity.
Each year, the CAC hosts many meetings and workshops, and receives visitors from not only California, but across the country and around the world. These events and visits spotlight CAC staff members and provide opportunities for them to share their expertise and exchange ideas with colleagues, as well as learn from the experts of the analytical world. Staff members were also invited to speak at local colleges.

The CAC participates in the department’s annual holiday food drive with many fundraising activities such as “white elephant” sales, book sales, and a Lab Canned Food Collection Competition. These events generated over $600 cash and more than 2 drums of canned foods for charity.
Food Safety Laboratory

The primary role of the Food Safety (FS) Laboratory at the CAC is to provide testing to local, state, and federal agencies that work to protect the nation’s food supply. The program consists of Pesticide Residue (PR), USDA-Pesticide Data Program (PDP) and dairy laboratories in Sacramento, and another PR laboratory in Anaheim. Besides its contract work, the FS laboratories voluntarily participate in the Food Emergency Response Network (FERN). FERN is a national organization comprised of governmental food-testing laboratories that respond to emergencies involving biological, chemical, or radiological contamination of food. The PR section is also a member of the FDA-Electronic Laboratory Exchange Network (eLEXNET), which is the data capture and communication system for FERN. Analytical data from the PR’s State Residue Monitoring (SRM) program is submitted to eLEXNET as part of the collaboration among government food testing laboratories to enable the network to recognize potential contamination.

Our philosophy embraces the belief that an organization is only as strong as its individual members. Our employees are valued for their input. We strive to foster a spirit of continuous learning and cooperation and the idea of excellence in service. Our on-going goals are to continually improve data quality and system efficiency, strengthen our collaboration efforts and involvement with other food safety organizations, enhance infrastructure and attain clients’ complete satisfaction. These goals align with our mission of providing high quality and cost effective analytical services.
HIGHLIGHTS AND ACHIEVEMENTS

We are proud of the level of expertise and the critical services our programs provide to client and stakeholders. Our biggest client, CDPR, realizes the importance of CAC’s analytical support in its task of protecting California consumers. CDPR requested our collaboration on writing a budget change proposal (BCP) that would fund the laboratories to update old equipment and enhance the program and expand our capabilities. The success of the BCP resulted in the amended contract the CAC has with the agency. The contract stipulates the purchase of new instruments this year and a subsequent equipment replacement schedule. Additionally, it allows for two new environmental scientist positions to be hired into the PR program. We are currently in the process of acquiring new Triple Quadrupole LC and GC-MS. These instruments will enable the FS team to increase our throughput; improve efficiency and data accuracy.

The collaboration between PR and PDP labs results in the accomplishment of the FS common goal of improving system efficiency. Late this year, the PR laboratory fully incorporated the Liquid Chromatography- Tandem Mass Spectrometry (LCMSMS) methods and successfully expanded the lab’s monitoring capability. Efforts are underway in the PR section to validate the new methods developed by the PDP team that would screen for an additional 75 chemicals while at the same time combining detection systems and reducing solvent waste.

In 2011, the USDA-PDP lab added 30 more chemicals to its pesticide screening list with a method that also reduces analysis time and automates data processing.

Concurrently, the PDP team is working on improving the sensitivity and capability of the existing instruments by employing new technology such as the Atmospheric Photo-Ionization (APPI) and new software such as the TraceFinder. The new methods improved the lab’s ability to detect chemicals in food products; reduced assay time and eliminated transcription errors by utilizing automated data processing.

A couple of infrastructure improvements necessary to accommodate the new instruments are in the works. The PR section is planning to install new benches with built-in noise suppression modules that would comply with safety requirement early next year.

FUTURE GOALS

While reducing budget issues continue to occur across the public sector, the current trend is to operate with reduced resources. However, we are committed to strengthen...
our effectiveness through the use of advanced technology. The Food Safety Laboratory continues to investigate the use of emerging technologies to expand its capabilities for detecting and quantifying a broad range of pesticides. High resolution mass spectrometry can potentially increase the number of targeted analytes in a single method to over 500, and may allow additional screening of non-targeted analytes and post acquisition data mining for possible detection of pesticide misuse. In addition, the increased sensitivity provided by the latest generation of mass spectrometers may allow for simplified “dilute and shoot” analysis, substantially reducing sample preparation time and providing a further reduction of matrix effects typically seen in LCMS analysis.

We recognize the necessity of exchanging ideas and collaborating with others in the technical field in the improvement of our own quality system. Staff in the FS team participates with US-FDA and other government agencies in various studies and collaborate with manufacturers in developing software directed at facilitating data processing.

**Pesticide Residue Laboratories**

The Pesticide Residue (PR) laboratories, in the Food Safety section of CAC, are located in Sacramento and Anaheim. The PR labs provide agrochemical analyses on food and environmental samples to support California’s growers and County Agricultural Commissioners, as well as several state and federal regulatory agencies.

The Pesticide Residue (PR) Laboratories provide analytical support to the Department of Pesticide Regulation (CDPR) for its mandates to perform comprehensive pesticide risk assessment and to promote effective enforcement of state and federal pesticide regulations. Through the State Residue Monitoring (SRM) program, the Sacramento and Anaheim PR laboratories analyze pesticide residues in fresh produce in the channels of trade to ensure industry’s compliance with the tolerance standards set by the US Environmental Protection Agency. Samples for the PR labs arrive from all California counties as well as the global market. The PR laboratories also perform analytical testing for California’s County Agricultural Commissioners in their investigative programs. These include the monitoring of field workers for pesticide exposure, investigations of incidents of pesticide drift, and illnesses related to the misuse of pesticides.

Both laboratories continue to develop improved LC- and GC-MSMS methods, which offer the advantage of unequivocal identification of targeted chemicals in a single analysis.
In 2011, the PR laboratories analyzed 3000 market surveillance samples in the SRM program. Of these surveillance samples, 1094 samples, or 36%, had detected pesticide residues and only 2.5% had positive findings that were non-compliant with US EPA’s established tolerance regulations, making our food supply among the safest in the world. The most commonly found residues are Permethrins, Chlorothalonil, and Boscalid. See graph for the top fifteen pesticides detected in produce in the SRM program. PR laboratories also conducted a total of 781 analyses on 571 samples in the County Investigative (CI) program. The majority of samples were foliage. The most requested analysis this year was Chlorpyrifos due to an investigation of its misuse on cilantro.
Fifteen most Requested Analysis in the Agricultural County Investigative Program

The PR Lab conducted 23 Structure-Related Samples in the County Investigative Program in
USDA Pesticide Data Program

California has been one of the participating states in the US Department of Agriculture (USDA) Pesticide Data Program (PDP) since 1991 and was one of the first states to join this program. PDP has evolved from a cursory survey of a few commodities to being the primary source of the real-world pesticide residue data which are essential for the dietary exposure component of risk assessments performed by the Environmental Protection Agency (EPA) (USDA-PDP 2009 report). Unlike enforcement programs such as the State Residue Monitoring program, PDP provides pesticide residue data for washed, ready-to-eat produce from representative nationwide sampling and over significant time periods. PDP’s data is also used by other governmental agencies and the agricultural community to better understand the relationship of pesticide residues to agriculture practices, to improve integrated pest management practices, and provide information to support the export of U.S. commodities.

The USDA-PDP laboratory participated in the transshipment of commodities across the country and focused on 8 commodities in 2011. More than 2700 samples were analyzed in the first three quarters of the year. Each sample was screened for more than 250 different pesticides and metabolites. See the chart highlighting the samples by commodity, along with the percentage of each commodity’s positive findings. The next table shows the sample codes used, along with the pesticide found most often for each commodity. The 25 most commonly found chemicals, along with the percentage of positive findings for each of the eight commodities tested are shown in the chart on the next page.

In a continuing effort to improve data quality and system performance, PDP performs rigorous recovery studies on over 100 analytes with each data set. Each sample is also spiked with a surrogate. Recovery of this surrogate is used to monitor the efficiency of the sample extraction process.
During 2011, the PDP section implemented several changes to improve the quality of the analytical data generated for the program. Organophosphate (OP) pesticides previously analyzed using dual column selective detectors were moved to MS/MS detection systems. MS/MS data is more unequivocal when compared to the older dual column detectors, and it eliminates the subjective interpretation of data. Consolidation of analytical methods also simplifies the data review process. In addition to consolidating OPs into the LCMS/MS analytical screen, additional compounds were added to the analysis to bring the total number of pesticides to 187 compounds being detected by this LCMS/MS method alone.
The section acquired two new Accela Ultra High Performance Liquid Chromatography (UHPLC) systems and an Atmospheric Pressure Photo Ionization source for use on existing mass spectrometers. The use of UHPLC allows for shorter analysis times and potential improvements in instrument sensitivity. The APPI source expands the range of pesticides that can be analyzed using LCMS. Method development for the UHPLC systems and photo ionization source is underway. To further improve program efficiencies, the PDP section switched to new software to use with the LCMS/MS method. The TraceFinder EFS software is specifically designed for Food Safety analysis, with a number of features that facilitate large quantitative screening methods (more 200 analytes). The laboratory is also evaluating a high resolution mass spec (HR-MS) system that enables identification, quantification and confirmation of ultra low level of analytes.

Our goal for next year is exploring the use of emerging technologies to expand our monitoring capability. We are evaluating high resolution mass spectrometry technology as HR-MS can potentially increase the number of targeted analytes in a single method to over 500 and may allow data mining for additional screening of non-targeted analytes. Furthermore, these HR-MS instruments with increased sensitivity may allow for simplified “dilute and shoot” analysis, substantially reducing sample preparation time, and providing a further reduction of matrix effects typically seen in LCMS analysis. The lessened matrix suppression would result in accurate quantitation of incurred residue.
The Dairy Chemistry Laboratory (DCL) supports both California’s dairy industry and the CDFA’s Dairy Food Safety Branch through its two programs. Routine samples assays test the composition of dairy and imitation dairy products for compliance with California criteria. The IRMA (Infrared Milk Analysis) program analyzes raw milk samples for use as instrument calibration reference samples. Each week, program staff prepares and distributes analyzed samples to participating dairies all over the nation. These dairies use these reference samples in determining the amounts of fat, protein, moisture, lactose, and total solids in raw milk samples. Milk prices are set according to the composition of the samples, so the IRMA reference standards play an important role in the nation’s dairy industry.

In an effort to consolidate operations, the Dairy Food Safety branch has decided to move the dairy chemistry operation to its San Bernardino facility. As the relocation project progressed, DCL’s staff members were reassigned to other sections within the CAC and the analyses and peripheral program such as the USDA proficiency testing (PT) were reduced as the result.
Environmental Safety Laboratory

The Environmental Safety Laboratory provides analytical services to local, state and federal agencies working to protect farm workers, the environment, and consumers from exposure to agrochemicals. The Laboratory’s testing monitors pesticides and their metabolites in air, soil, water and other matrices. The Laboratory is comprised of five sections: the Environmental Monitoring Section, the Worker Health and Safety Section, the Feed and Fertilizer Section, the Product Compliance Section, and a group supporting various CDFA programs.
The Environmental Monitoring (EMON) section provides analytical testing to monitor the environmental fate of pesticides and their metabolites in all matrices except food. As the chart below shows, a variety of both pesticide screens and single analyte assays are performed. The wide range of sample matrices includes air sampling tubes and filters, ground and surface water, soil and sediments, foliage, and swabs. Under an interagency agreement with the California Department of Pesticide Regulation (CDPR), the EMON section performs testing of air and water samples to monitor the amounts of pesticides potentially contributing to air quality problems from volatile organic compounds (VOCs), surface water, and ground water contamination issues.

The EMON Section developed many new analytical methods in 2011 at the requests of its clients. These included:

- Chlorpyrifos and Diuron in alfalfa
- Strobilurins and their metabolites, Dicloran, Iprodione and metabolites, and Vinclozolin and metabolites in well water
- Linuron, Isoxaben, Mefenoxam, Methomyl and Propyzamide in well water
- Methoxyfenozide and Tebufenozide in surface water.

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**2011 Distribution of EMON Sample Analytes**

- Chlorothalonil 6%
- Chloropicrin 6%
- Pyrethroids 8%
- MITC 8%
- Triazines 9%
- VOC 10%
- EJ/Mendota 11%
- OP and Diazinon 11%
- Imid./Bensulide 4%
- Fipronil & Metabolites 4%
- Phenoxy Herbicides 4%
- AKPT 3%
- DNA/Oxyfluorfen 2%
- Methoxy/tebufenoxide 1.5%
- Oryzalin 1.4%
- Bensulide 1%
- Carbaryl <1%
- Cyfluthrin <0.5%
- ACDIV <0.5%

Other 22%
Worker Health and Safety Section

The Worker Health and Safety (WH&S) Section provides analytical testing for the CDPR for farm and nursery worker protection studies and exposure incidents. The results of these studies are used to help determine pesticide exposure limits for farm workers and to set field re-entry times after pesticide applications. The lab is also accredited for the analysis of dislodgeable foliar residues that might result in worker exposure.

The WH&S section analyzed a total of 1740 samples. The primary analysis was a project studying para-dichlorobenzene exposure. Other analyses included methyl bromide and chloropicrin.

Feed and Fertilizer Section

The Feed and Fertilizer section provides microscopy and chemical analyses for the Feed, Fertilizer, and Livestock Drugs Regulatory Services Branch (FFLDERS) and the Inspection and Compliance Branch of the CDFA. This section uses a wide variety of analytical methods, as shown in the chart below. These range from traditional wet chemical analyses to advanced instrumental methods such as atomic absorption and inductively coupled plasma spectrometry for metals to state-of-the-art liquid chromatography/mass spectrometry methods for pesticides, mycotoxins, and feed additives. Multiple assays are performed on most samples.
Over sixty different microscopy and chemical analyses may be performed on feed samples to ensure compliance with the laws and regulations governing the feed industry. These tests include proximates (protein, fat, fiber, etc.), minerals, drugs, vitamins, and mycotoxins. Microscopic analysis of samples is used to detect the presence of foreign matter such as insect debris and materials prohibited in animal feed. The Feed group also analyzes the omega-3 fatty acid content of shell eggs.
PRODUCT COMPLIANCE SECTION

The Product Compliance Section analyzes pesticide products sold to the public to ensure that the label information matches the content of the package (label guarantee) and to check for adulteration or contamination based on the guidelines set by the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). Products tested include samples collected at production facilities and retail outlets, as well as concentrates and tank mixes used by professional Pesticide Control Applicators, and samples related to human or animal hazards. Samples are analyzed at concentration ranges from percent levels down to parts per million (ppm), depending on the requirements of a particular assay. One very important responsibility of the Product Compliance laboratory is the testing of pesticide formulations and quaternary ammonium chlorides (cleaning agents) for label compliance, since product labeling is the primary enforcement mechanism for FIFRA.

The section operates under an interagency agreement with the CDPR and US EPA to test up to 50 samples annually for a range of products, including cans of insect sprays, mosquito repellent wipes, insecticidal chalk, and citronella oil.
CDFA Programs:

Integrated Pest Control
Pest Detection and Emergency Projects

The ESL also supports several CDFA Programs such as the Pierce’s Disease Control Program, Asian Citrus Psyllid, Japanese Beetle, and the Red Palm Weevil by testing more than 600 environmental monitoring samples in 2011.

Laboratory testing of environmental monitoring samples (water, soil, air, & foliage) from emergency eradication projects of insect pests that are detrimental to California's agricultural industry is an important component of the eradication process. These tests help to ensure spray tanks are cleaned properly and that the correct concentration of pesticides is used. Monitoring of the levels of pesticides found in and around the treatment areas protects the public, field workers, and the environment. When required, measurements are made down to parts per billion (ppb) or even parts per trillion (ppt) levels to achieve the highest levels of safety.

Interdepartmental Contracts

Under an interdepartmental contract with the California Department of Boating and Waterways, the Environmental Analysis Section provides analytical support during treatment of aquatic weeds following the guidelines of the National Pollution Discharge Elimination system (NPDES).

Measurements are made down to the parts per billion (ppb) levels to provide the highest possible level of protection for California’s waterways. Monitoring includes the herbicides 2,4-D, glyphosate, fluridone, the adjuvant Agridex, and is performed both pre- and post application.
The Quality Assurance Unit (QAU) monitors the work product quality throughout the CAC to ensure that its facilities, equipment, personnel, methods, practices, records, and controls are all in conformance with established policies and procedures. The QAU also reviews both data and the validation of the test method for all commodities analyzed by the PDP program. The chart below shows the PDP data sets reviewed in 2011. In addition, the QAU reviews data for the Good Laboratory Practices (GLP) projects and for other CAC sections as needed. All CAC sections’ records and operations are audited by the QAU on a regular schedule.

The QAU monitors compliance with the ISO 7025:2005 standard (General Requirements for the Competence of Testing and Calibration Laboratories). Under the guidance of the QAU, the Center received its ISO 17025 accreditation renewal in 2010, following a comprehensive audit by A2LA, an ILAC-MRA signatory. The CAC must renew its accreditation for ISO 17025 every two years.

The QAU conducts internal audits of all CAC units for the specific test methods identified in the laboratory’s scope of accreditation on an annual basis. Corrective actions will be initiated where deficiencies are found. Client feedback will be obtained to promote continuous improvement in all CAC activities and services.

Throughout the year, the QAU provides Proficiency Evaluation (PE) Samples in coordination with the USDA/PDP and the AOAC International.
## Proficiency Evaluation Sets Prepared by the Quality Assurance Unit in 2011

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<th>Month</th>
<th>Program</th>
<th>Matrix</th>
<th># of Chemicals</th>
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<tr>
<td>January</td>
<td>USDA-PDP</td>
<td>Eggs</td>
<td>10</td>
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<tr>
<td>February</td>
<td>AOACI</td>
<td>Apples</td>
<td>9</td>
</tr>
<tr>
<td>March</td>
<td>USDA-PDP</td>
<td>Soybeans</td>
<td>13</td>
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<tr>
<td>March</td>
<td>QA-Blind</td>
<td>Beets</td>
<td>6</td>
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<tr>
<td>April</td>
<td>USDA-PDP</td>
<td>Cantaloupe</td>
<td>11</td>
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<tr>
<td>June</td>
<td>AOACI</td>
<td>Bell Peppers</td>
<td>9</td>
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<tr>
<td>June</td>
<td>USDA-PDP</td>
<td>Soybeans</td>
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<td>August</td>
<td>USDA-PDP</td>
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<td>August</td>
<td>QA-Blind</td>
<td>Snap peas</td>
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<td>September</td>
<td>USDA-PDP</td>
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<td>October</td>
<td>AOACI</td>
<td>Eggplant</td>
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<tr>
<td>December</td>
<td>USDA-PDP</td>
<td>Milk</td>
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Feed, Fertilizer, and Livestock Drugs Regulatory Services
**Program Summary**

The Feed, Fertilizer, and Livestock Drugs Regulatory Services (FFLDRS) Branch supports California’s agricultural industries through a wide range of programs. These programs are designed to provide Californians with an abundant supply of clean and wholesome food and fiber. FFLDRS works to ensure that all feed, fertilizing materials, and livestock drugs sold in California are safe, effective, and meet the manufacturers’ quality and quantity guarantees. FFLDRS also has a crucial role in the protection of the State’s environment by regulating the manufacture and use of the fertilizing materials used in agriculture. Program activities are supported by a tonnage tax on feed and a mill assessment on fertilizing materials.

The Commercial Feed and Livestock Drug Inspection Program is responsible for the enforcement of state law and regulations covering the labeling, manufacture, distribution, and the use of commercial livestock feed and drugs in California. Inspection and testing programs help prevent toxins and contaminants from entering the food chain.

The industry-funded Safe Animal Feed and Education (SAFE) Program works to improve the safety of commercial livestock feed by fostering a cooperative relationship with the livestock industry. Outreach and education activities of the SAFE Program promote voluntary compliance with the State’s laws and regulations that apply to animal feed.

The Commercial Fertilizing Materials Inspection Program is responsible for regulating the manufacture and distribution of fertilizing materials in California, as well as the registration of fertilizing materials package labels. Effective January of 2010, AB856 was introduced and a new program was implemented in the Fertilizer program - Organic Input Material (OIM) used for organic food and crop production.

The Fertilizer Research and Education Program (FREP) funds research to advance optimal agronomic practices for fertilizing materials that maximize efficiency while protecting the environment. The FREP also disseminates fertilizer educational materials and information to ensure that California growers have access to the latest information and guidelines.
Feed and Livestock Drugs Inspection Program

PROGRAM SUMMARY

The Feed Inspection Program (FIP) works in conjunction with the feed industry to ensure a clean and wholesome supply of meat, milk, and eggs in California. Feed and Livestock Drug Inspectors and Special Investigators located throughout the state conduct routine sampling and inspections, quality assurance inspections of manufacturing facilities, respond to consumer complaints, and enforce the feed laws and regulations.

The FIP is entirely industry-funded. Manufacturers and distributor of commercial feed are required to hold a license for each business location. Any person who distributes commercial feed to a consumer-buyer in California is required to pay an inspection tonnage fee on commercial feed sold. There is an exception for whole grains and whole hays when unmixed. The FIP lowered the tonnage tax from 9 cents ($0.09) per ton to 8 cents ($0.08) per ton effective July 1, 2011.

Another primary focus of the inspection program is feed safety. Analyses are run for mycotoxins such as aflatoxins, medication residues, heavy metals, pesticides, toxic minerals, and mammalian protein that is prohibited under the BSE (bovine spongiform encephalopathy) regulations.

The FIP also conducts tissue residue investigations stemming from the improper use and administration of livestock drugs. The program works under a reimbursement contract with the U.S. Food and Drug Administration under BSE rule 21 CFR Parts 589.2000 and 589.2001.

The Livestock Drug Program regulates over-the-counter livestock drugs. A Livestock Drug Registration Certificate must be obtained for each over-the-counter livestock drug before it is offered for sale in California. Fees collected from licensing and registrations fund this program. The program reviews livestock drug data for safety and efficacy.

Livestock drug labels are also reviewed for regulatory compliance. The labeling requirements specifically identify route, dosage, and withdrawal information to eliminate any drug residue in food products derived from livestock animals. Each location that offers restricted livestock drugs

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<th>Distribution of Feed Licensees</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Location</strong></td>
</tr>
<tr>
<td>California</td>
</tr>
<tr>
<td>Other US States</td>
</tr>
<tr>
<td>International</td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Livestock Drugs Program</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Restricted Livestock Drugs Registered</td>
<td>474</td>
</tr>
<tr>
<td>Livestock Drug Licensees</td>
<td>430</td>
</tr>
<tr>
<td>Livestock Drug Quarantined</td>
<td>137</td>
</tr>
<tr>
<td>Over the Counter Livestock Drug Products Registered</td>
<td>1,326</td>
</tr>
</tbody>
</table>
for sale must hold a license with the State of California and maintain records of drug sales.

**TRENDS AND ISSUES FOR 2011**

The high cost of feed ingredients continues to have a negative effect on the feed industry. A limited supply of feed ingredients, transportation, and facility costs have caused feed manufacturers to look to other types of ingredients in the production of animal feed. In an effort to formulate feed rations on a least-cost basis some feed manufacturers introduced unapproved feed ingredients to their product. This issue poses a growing challenge to the Feed Inspection Program, as investigative staff continues to find unapproved feed products in the channels of trade. In addition to unapproved feed products, FIP staff discovered packaged animal feed with substituted ingredients or, in some cases, lacking ingredients listed on their label.

As in years past, almond hulls continue to be the most problematic of all feed ingredients due to exposure to the elements. 2011 was no exception as the state experienced an unusually wet winter, spring, and summer. As a result, program investigators were busy following up on complaints of moisture damaged almond hulls. Staff quarantined approximately 7,375 tons of almond hulls for quality issues, damage, and adulteration with aflatoxin. By means of workshops and on-site process control audits, FIP staff stressed to almond hullers and brokers the importance of adhering to state-mandated almond hull requirements. They also provided quality assurance information to help ensure compliance.

In 2011, the Feed Inspection Program continued to make progress with high-violating firms through comprehensive sampling summary reports detailing firms with the highest violation rates. These summary reports enabled the program to objectively align investigative staff and sampling parameters based on a risk assessment of commodities and manufacturing practices. Formal contracts with universities in northern and southern California will continue, such as the one established in 2008/09 with the University of California, Riverside, Animal Health and Food Safety Laboratory. The contract scope includes testing for E. coli and Salmonella, including poultry layer rations. Analysis of these products supports the program’s top priority of feed and food safety.

A license fee on manufacturers and distributors of commercial feed is used to support the operation and growth of the program. The Commercial Feed Law sets the annual license fee at $300.00. In addition to the license fee, a tonnage fee of $0.08/ton is collected quarterly from industry. The license and tonnage fees support program inspection activities.
Another industry-funded program under FIP is the Livestock Drug Registration Program. A biennial label registration fee of $180.00 per product is used to monitor compliance, distribution, and use of livestock drugs. A restricted drug license fee of $25.00 per year is also collected. These fees support FIP operations to track and monitor the sale of restricted livestock drugs in California.

ACCOMPLISHMENTS FOR 2011

The Commercial Feed Inspection Program investigators recalled one brand of horse feed that tested positive for monesin. Monesin is very toxic to horses. The producer of the horse feed cooperated with investigators and assisted in locating all the questionable horse feed which was subsequently quarantined. FIP staff conducted a statewide feed rail car label survey and discovered that many feed rail cars entering California were not properly labeled. Commercial feed distributed within the state in rail cars must have labels with a guaranteed analysis affixed to the car or have documentation specific to that rail car. Industry was notified of the results and instructed via an Industry Notice of California’s rail car labeling requirements. For the first time in over ten years the program saw ship loads of cottonseed enter California from the country of Australia. The cottonseed was inspected and released as safe for animal feed.

The Feed and Livestock Drugs Inspection Program contracts with the US FDA each year to perform BSE and tissue residue investigations. 2011 saw an increase in the number of tissue residue investigations and a slight decrease in BSE inspections. USDA and FDA inspections on slaughtered dairy and beef cattle revealed an increase in tissue residue violations. As a result, the FDA amended the FIP tissue residue contract to include an additional 25 investigations per contract year. BSE issues appear to have been resolved and the BSE contract was reduced by 25 to 100 inspections per contract year. Changes to the contract did not prevent the FIP from having another exemplary year as FIP investigators and inspectors completed contract requirements well within the allotted time frame. The program continues to promote a coordinated sampling plan with incoming feed sources at the border stations. Enhanced communication efforts between the Feed and Livestock Drugs Program and other CDFA branches, such as Animal Health and Food and Safety, and Meat and Poultry Inspection, have enhanced intra-agency efforts to maximize the effectiveness of food safety measures.

<table>
<thead>
<tr>
<th>2011 Feed Inspections Program by the Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Samples</strong></td>
</tr>
<tr>
<td><strong>Quarantines</strong></td>
</tr>
<tr>
<td><strong>Complaints</strong></td>
</tr>
</tbody>
</table>
Feed analyses at the Center for Analytical Chemistry

The Feed group at the Center for Analytical Chemistry performs over sixty different microscopic and chemical analyses on feed samples submitted by FIP inspectors. Microscopic analysis of samples is used to detect the presence of foreign matter such as insect debris and materials prohibited in animal feed. Chemical analyses include nutrients, toxins, pesticides, and heavy metals. The chart below shows the distribution of assays at CAC’s Feed lab for the FIP in 2011.

Several different assays are typically requested for each sample. In 2011, CAC

Feed group staff performed 5,894 different assays on 1,099 samples submitted by program inspectors.
A majority of feed analyses are routinely completed within 21 days. The time to complete a given sample depends on the assays required and the lab workload. For example, in time-sensitive situations when contamination of animal feed is suspected, samples may be designated for ‘Rush’, ‘Partial Rush’, or ‘Priority’ analysis. ‘Rush’ samples are completed within 5 days and ‘Priority’ samples in 5-14 days. ‘Partial Rush’ samples are expedited by the lab within a 14 day time-frame.

For example, whole cottonseed samples are completed with 24 hours, feed corn within 48 hours, and almond hulls within 72 hours. Feed samples that must be dried before being tested for aflatoxin are completed within 96 hours.

The chart above shows the number and priority status of samples submitted to the Feed lab in 2011. Of the total of 1099 samples, 67% were submitted with ‘Routine’ priority.

To support enforcement of California’s strict regulations for aflatoxin contamination of animal feed, special turn-around times are set for aflatoxin analyses. These range from 24 to 96 hours according to the specific feed commodity.
Feed and Livestock Drugs Inspection Program Districts

Northern California Counties District
Charlie Nelson  916-445-0449

San Joaquin District
Cyril Huisman 209-942-6197

Stockton District
Mike Davidson  209-942-6194
Killeen Sanders  209-942-6194

Fresno District
Frank Delgado  559-452-9687

Bakersfield District
Chris Hansen 559-452-9683

Ontario District
Shelly Moore  909-930-9689

El Centro District
Tim Walters  760-356-4673
Percy Mejia  760-356-4673
SAFE ANIMAL FEED EDUCATION PROGRAM

PROGRAM SUMMARY

The Safe Animal Feed Education (SAFE) Program established in 2005 is entirely industry-funded. The program was developed in collaboration with the commercial feed industry to promote a cooperative relationship to ensure the safety of animal feed in California.

The SAFE Program consists of two components:

1. Outreach and Education-
SAFE Program staff work with the California feed industry in assuring proper use and handling of medicated feed, and concentrated feed supplements, as well as informing industry of new state and federal regulations affecting the feed industry, specifically the Food Safety Modernization Act, signed into law January 2010.

2. Comprehensive Voluntary Feed Quality Assurance Audits-
Staff conducts a 385-point voluntary feed quality assurance audit. The review of operations includes:

- Evaluation of manufacturing practices,
- Quality assurance protocols,
- Process controls,
- Ingredient storage,
- Record keeping,
- Product labeling, and
- Compliance with laws and regulations

The SAFE Program conducted a mycotoxin survey on corn grain sold in California. As a result of the study findings, the Feed Inspection Program continues to sample grains for mycotoxins on a regular basis. Routine aflatoxin and fumonisin testing is an integral part of the program’s efforts toward feed safety. California has one of the most stringent tolerance limits on aflatoxins in animal feeds to prevent aflatoxin from contaminating milk.

SAFE Program staff develops High Violator Firm Binders for those firms who have a violation rate over 30% from the Official Samples obtained in 2011. SAFE Program Staff then meet with the identified firms, present the programs findings, and develop a strategic plan of how to lower the violation rate and reach regulatory compliance.

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2011 SAFE Program Activities

| SAFE Audits          | 10 |
| Cal - GMP Inspections| 12 |
| On-Farm Mixer Studies| 4  |
| Feed Mill Mixer Profiles | 10 |
ACCOMPLISHMENTS FOR 2011

2011 was another successful and busy year for the Safe Animal Feed Education program. In September the program hosted a CA Feed Industry Workshop focusing on the FDA’s Food Safety Modernization Act (FSMA) in Modesto, CA. Featured speakers included Dr. Daniel McChesney, Director of Surveillance and Compliance at FDA’s Center for Veterinary Medicine and Mr. David Fairfield, Regulatory Affairs for the National Grain and Feed Association to discuss the affects of FSMA regulations on the Feed Industry. In addition the SAFE Program held a labeling workshop which focused on medicated feed labeling requirements.

SAFE also provided extensive outreach to various firms and organizations regarding the SAFE programs ability to assist industry to gain compliance through voluntary participation with state and federal regulations. The California Grain and Feed Association, American Registry for Professional Animal Scientists, University outreach at Cal Poly San Luis Obispo, and CGFA’s Annual Grain and Feed Industry Conference were just a few of the 2011 presentation highlights for the SAFE Program.

In Response to FDA’s Food Safety Modernization Act, the SAFE Program also developed a three tiered model approach to assist the CA Feed Industry gain compliance with new FSMA regulations. It includes the California Good Manufacturing Practices (CGMP) Audit, followed by the SAFE Quality Assurance Audit, and the new Hazard Analysis and Preventative Controls Audit. SAFE program staff is also certified in auditing Feed Hazard Analysis Critical Control Points (HACCP) plans for those firms who develop a HACCP plan in their feed mill operations.
FERTILIZING MATERIALS INSPECTION PROGRAM

PROGRAM SUMMARY

The Fertilizing Materials Inspection Program (FMIP) is responsible for regulating the manufacture, distribution, and sale of fertilizing materials in California. The program ensures that consumers receive fertilizing materials that are safe and effective and meet the manufacturer’s quality and quantity guarantees.

TRENDS/ISSUES FOR 2011

Licensing

All manufacturers and distributors of fertilizing materials are required to obtain a license from the program prior to engaging in any fertilizer related activities. In 2011, the program maintained 2,011 licenses of fertilizer manufacturers and distributors; 1,173 of these licenses were for manufacturers and distributors in California, 730 for manufacturers and distributors in other U.S. states, and 108 licenses were international. The table to the left shows the distribution of these licenses within and outside of California.

Licenses are valid for a two-year period and will expire on December 31, 2012. Renewals commenced January 1, 2011 at a cost of $100 per license and will be valid until December 31, 2012. License renewal notices were distributed to all licensees by the FMIP.
**Registration**

Fertilizing materials are sold and distributed with a product label containing information about the product such as weight, grade, and analysis. The FMIP is responsible for reviewing and registering product labels, and ensuring fertilizing materials are safe, effective, and meet the nutrients guaranteed by the manufacturer. Producers of packaged fertilizing materials less than 110 lbs (agricultural minerals, auxiliary soil and plant substances, commercial fertilizers, soil amendments, specialty fertilizers, and organic input materials) are statutorily mandated to register with the FMIP. The chart on the right shows the product labels reviewed and registered for the different categories of products. Currently, 6031 product labels are registered with CDFA. One Staff Environmental Scientist, eight Environmental Scientists, and a Research Analyst are tasked to:

- Review the fertilizer label to ensure the nutrient levels can be derived from the sources stated in the derivation statement,
- Validate nutrients guaranteed, manufacturing processes, or any product marketing claims,
- Review and update registered product labels or determine if new registration is needed,
- Ensure label compliance,
- Process fertilizing materials license and registration renewals,
- Verify that fertilizing materials license application is current and there are no outstanding tonnage reports or mill assessments,
- Communicate and coordinate with inspection staff regarding expired licenses and non-registered fertilizing material product label in the channel of trades, and
- Review efficacy data to verify claims can be substantiated by scientific research.

![Fertilizing Materials Product Labels Registered in California](image)
ORGANIC INPUT MATERIAL

The FMIP staff reviews both conventional fertilizer labels and Organic Input Material (OIM) used for organic food and crop production. OIM will require review by FMIP registration staff for compliance with the National Organic Program (NOP) Standards. Registrants are required to submit the product label, a registration fee of $500, and provide the following supporting documents:

- Complete formula of material (both active and inactive ingredients),
- Complete description of the manufacturing process for each ingredient,
- Complete description of the final product,
- Intended use of the product,
- Supplier of ingredients,
- Alternate formulation,
- Third-party formulated ingredients, and
- Any additional information supporting compliance with the NOP standards.

In some cases, conventional and organic fertilizer registrants must submit efficacy data from experimental field trials using the products to verify label claims. The program’s lead scientist reviews these claims and makes a determination on their validity. The FMIP program also consults with the University of California, Davis to obtain feedback on efficacy data.

FEES

An industry-funded assessment and fee on the sale of fertilizing materials is used to support the operation and growth of the program. Currently, the assessment is 1.5 mills ($0.0015) per dollar of fertilizer sales. In addition, a new license and fertilizing materials label registration fee is $100. Label registration renewal fees are $50, and the license renewal fee is $100. These assessments and fees support the licensing, product label registration, inspections, and daily operations of the program.
This flowchart shows the fertilizer label registration and review process. Rectangles indicate a processing unit and the ovals indicate action items.
Fertilizer Sampling and Inspection

With the support of the fertilizer industry, the Fertilizing Materials Inspection Program (FMIP) has been mandated by the legislature to inspect and sample fertilizer products and verify that label nutrient guaranteed analyses are met and that products do not contain excessive levels of non-nutritive metals. The program emphasizes focused and targeted sampling. This means that the majority of samples obtained are not selected at random but because of other factors. The risk factor criteria include noncompliant labeling, unregistered products, products from unlicensed manufacturers, lab analysis history, or products new to the marketplace. In 2011, a total of 93 fertilizing material products were quarantined.

ACCOMPLISHMENTS FOR 2011

Fertilizer analyses at the Center for Analytical Chemistry

In 2011, the program’s state inspectors and special investigators collected 965 fertilizing material samples for analysis by the Fertilizer Group at the Center for Analytical Chemistry. These included 909 official samples and 56 investigative samples. These samples were obtained from 350 fertilizing material manufacturers (or manufacturing locations).

A total of 5,427 different individual plant nutrient and ingredient assays were performed at the CAC laboratory on these samples. The chart below illustrates the distribution of these assays by analyte. In 2011, 59% of all assays completed were for the three primary macronutrients (Nitrogen in all forms, Potash (Potassium), and Phosphorous). In addition, 330 samples were analyzed to determine levels of heavy metals (Arsenic, Cadmium, and Lead).
Lab analyses of routine program samples are completed within 21 days depending on the assays required and the lab workload. In time-sensitive situations, samples may be designated for Rush, Partial Rush or Priority analysis. Rush samples are completed within 5 days and Priority samples in 5-14 days. Samples designated as Partial Rush are expedited by the lab within a 14 day time-frame. The chart below shows the distribution of priority status of samples submitted in 2011. The majority of samples (89%) were submitted with routine priority.

In addition to regular sampling of fertilizing materials, the FMIP’s field staff also:

- Verify manufacturer licensing and product registration,
- Communicate and coordinate with registration staff regarding manufacture licensing and fertilizing material labeling,
- Ensure labeling compliance,
- Perform fertilizing material facilities inspections,
- Sample fertilizing materials and request test for guarantees on label,
- Review test results and issue violation notices (if any),
- Work with manufacturer to correct any deficiencies/problems in product guarantees,
- Respond to (industry and consumer) complaints,
- Conduct investigations of alleged fertilizer-based violations,
- Examine heavy metal analysis and remediate products with excessive levels,
- Educate the industry on licensing, registration and labeling requirements,
- Ensure labeling compliance, and
- Quarantine non-compliant products and issue citations using regulatory authority
In 2011, the program’s field staff included one supervising special investigator, four special investigators, one inspector, and one agricultural technician. Together, they possess over 80 years of combined agricultural experience. The map below shows the geographic distribution of the field staff throughout the different regions of California. Field staff may coordinate work across regions for complex investigations. The regional boundaries are based on fertilizer use and crop distribution in the state, compiled as part of the 2008 strategic planning study for the Fertilizing Materials Inspection Program.
The laws that govern FMIP require the program to maintain and publish an annual report on the distribution of fertilizing materials within the state. The program publishes the tonnage distribution report in the state every six months. This report identifies tons of nitrogen, phosphorus, and potassium used from either January to June or July through December. The same time periods are used to identify distribution of tons of agricultural minerals by use (e.g., farm or non-farm use), by form (e.g., liquid or dry), by county, by different types (e.g., sodium nitrate or potassium sulfate), and by comparison of current use trends with previous years.

According to the most recent data compiled for the tonnage report, approximately 3.5 million tons of fertilizers were distributed in the state from January to June 2011 and 2.47 million tons of fertilizers (partial data) were distributed from July to December 2011. These reports are made available to the public through university libraries and other institutions and organizations.

**HIGHLIGHTS FOR FERTILIZING MATERIALS LABEL REVIEW**

In 2011, the registration staff continued to work diligently and reached the milestone of reviewing all fertilizing material labels within 90 days to meet the statutory requirement of the State Permit Reform Act; Article 1, of Chapter 4. The Permit Reform Act mandates that fertilizing material licenses are processed within 60 days and fertilizing material label registrations are processed within 90 days after receipt. Staff’s dedication helped in eliminating the backlog for product label registration.

The FMIP established a Material Review Program for OIM with staff that quickly mastered organic standards and input materials issues. OIM program scientists have completed the review of 350 OIM product labels. The program conducted Organic Input Material-focused workshops for manufacturers and distributors. The program staff also presented at several conferences attended by stakeholders. The purpose of the outreach activities was to educate stakeholders about the state laws and regulations including the provisions of OIM law and the regular functions of the program. FMIP staff organized or participated in the following events:

- Jan. 27, 2011, Eco Farm Conference [Asilomar]
- Feb. 2, 2011, OIM Workshop [Modesto], 82 attendees
- Apr. 14, 2011, Biocycle Conference [San Diego], 21 attendees
- Jul. 28, 2011, California Pest Control Advisers (CAPCA) and Organic Fertilizer Association of California (OFAC) [Modesto]
- Aug. 18, 2011, CAPCA/OFAC [Tulare]
IMPLEMENTATION OF OIM LAW

BACKGROUND INFORMATION

AB 856 was introduced in response to CDFA’s investigation of an organic fertilizer manufacturer that was adulterating a liquid fertilizer with an unapproved ingredient. In consultation with the Fertilizer Inspection Advisory Board (FIAB), CDFA reviewed the incident and identified gaps in its authority to regulate OIM used for organic crop and food production.

PURPOSE OF OIM LAW

AB 856 addresses industry concerns about fertilizing materials used in the production of organic food and crops. The main goal of AB 856 is to ensure the integrity and composition of organic input materials (OIM) that are used for organic food and crop production in California. The new law fills gaps in CDFA’s authority to regulate fertilizing materials used for organic food and crop production. It provides CDFA with enhanced enforcement authority to achieve regulatory compliance.

FERTILIZING INSPECTION ADVISORY BOARD OIM SUBCOMMITTEE

In June 2010, the Fertilizer Inspection Advisory Board (FIAB) formed the OIM Subcommittee. This Subcommittee included representatives from the FIAB, the composting industry, organic input manufacturers, accredited certifying agents (CCOF and ASCO), organic growers, trade associations, and CalRecycle. The FIAB Subcommittee was formed to develop the regulatory framework needed to implement the provisions of AB 856 (Ch. 257, Stats. of 2009), and identify oversight and implementation issues.

The FMIP worked with the industry in a transparent process to formulate an implementation plan for the provisions of AB 856 law. CDFA, the FIAB, and its OIM Subcommittee have resolved key issues pertaining to compost regulation as it affects nutrient guarantees, lab reports, and nutrient variability. Representatives of the composting industry on the OIM Subcommittee are recommending that their members register their organic materials with CDFA. The FIAB has also accepted key recommendations from the OIM Subcommittee on the scope of the OIM definition, the OIM custom blend label review, the site inspection procedures, the audit checklist for on-site inspection in California, the proposed regulations/civil penalty matrix to enhance uniformity and cohesion, and label registration fee.
Fertilizer Research and Education Program

Program Summary

The Fertilizer Research and Education Program (FREP) facilitates and coordinates research activities by providing funding for fertilizer research and development and by disseminating fertilizer educational materials and information. FREP is designed to serve farmers and other users of fertilizing materials, agricultural service professionals, university extension personnel, public agencies, and agricultural consultants. In fact, one of FREP’s key goals is to ensure that research results generated from the program are distributed to and used by farmers and the fertilizer industry.

The Technical Advisory Subcommittee (TASC) of the Fertilizer Inspection Advisory Board (FIAB) directs FREP activities. This subcommittee includes growers, fertilizer industry professionals, state government scientists, and university extension and research personnel. With guidance from the TASC, FREP reviews proposals for research and education projects. After peer review, FREP makes recommendations to the FIAB for annual funding of a limited number of these proposals.

Trends and Issues for 2011

Each year, the TASC determines specific research priorities to fund in the following year. In 2011, the following research priorities were identified:

- Updating nutrient requirements,
- Increasing fertilizer efficiency through cost-benefit analysis,
- Improving fertilizer efficiency in drip irrigated micro-irrigation systems, and
- Devising innovative techniques to improve fertilizer use efficiency

Lettuce field in Salinas
The TASC uses these guidelines to determine which projects receive funding for the following year. However, because much FREP research has been broadly applied, other research areas are also considered by the TASC for funding. These include:

- **Site-specific fertilizer technologies:** Demonstrating and quantifying applications for site-specific crop management technologies and best management practices related to precision agriculture.

- **Diagnostic tools for improved fertility/fertilizer recommendations:** Developing field and laboratory tests for predicting crop nutrient response that can aid in making fertilizer recommendations.

- **Nutrient/pest interactions and nutrient/growth regulator inter-actions:** Demonstrating or providing practical information to growers and production consultants on nutrient/pest interactions.

- **Education and public information:** Creating and implementing educational activities that will result in adoption of fertilizer management.

- **Practices and technologies that improve impaired water bodies.** FREP funding can also be used for different types of activities including on-farm demonstrations that exhibit improved profitability, reduced risk, or increased ease of management.

- **Educational programs:** Developing programs to educate growers, fertilizer dealers, students, teachers, and the general public about the relationships between fertilizers, food, nutrition, and the environment.

- **Preparation of publications, slide sets, videotapes, conferences, field days, and other outreach activities:** Support for FREP's mission, such as air quality, tillage, crop rotation, economics of fertilizer use, and cropping systems.

### FREP Proposals selected in 2011 for funding* from 2012 to 2015:

**Determination of Root Distribution, Dynamics, Phenology and Physiology of Almonds to Optimize Fertigation Practices.**

Uses information derived from this project and other associated projects to improve the design of fertigation systems and to optimize the application of fertilizers.

**Survey of Nitrogen Uptake and Applied Irrigation Water In Broccoli, Cauliflower and Cabbage Production in the Salinas Valley.**

Provides detailed measurements of N uptake and current irrigation management of broccoli, cauliflower and cabbage to identify practices that may reduce nitrate leaching losses.

**Remediation of Tile Drain Water Using Bioreactors**

Field tests using biological denitrification for the remediation of wastewater under commercial field conditions.

**CA CCA FREP Educational Project.**

Provides continued support for the CA CCA program's administration as well as education and outreach efforts.

**Optimization of Organic Fertilizer Schedules.**

Develops and extends the NBOT (Nutrient Budget Optimization Tool) to help with management of organic N.

**Exploring the Potential for Using Transgenic Crops for Improved Fertilizer Use Efficiency.**

Evaluates the potential for using AVP1 modified crops for improved nutrient use efficiency under desert cropping systems.

**Updating Prior Curriculum for Grades 5-8.**

Updates fertilizer education materials for grades 5-8 with the goal of increasing student understanding of the role of plant nutrients in agriculture production.

*Funding is generally limited to $50,000 per year for up to three years. Large, multi-disciplinary projects may be considered at higher funding levels.
RESEARCH PROJECTS

FREP began funding projects in 1990. Projects have been funded throughout the state; however, the majority of FREP projects have been located in the Central Valley. Projects funded have also ranged widely in scientific discipline and agricultural commodity. The two areas of nutrient testing and irrigation/fertigation studies have made up over 50 percent of the projects funded. The distribution of projects focusing on the various agricultural commodities is more evenly distributed. Vegetable, field, fruit, and multiple crop projects have all been funded in equal proportion. The following charts show the distribution of FREP funded projects among geographic regions, scientific disciplines, and agricultural commodities since FREP was established in 1990.

FREP Projects by Discipline 1990-2011

- Nutrients and Soil Testing: 34%
- Irrigation/Fertigation: 19%
- Fertilizer Practices: 12%
- Precision Agriculture: 7%
- Education: 15%
- Other: 13%
- Various: 4%
- Compost/Cover Crops: 3%
- Pest Interactions: 3%
- Air Quality: 2%
- Heavy metals: 1%

Urea pellets
The greenhouse gas nitrous oxide is generated as a result of the application of nitrogen fertilizers in agriculture. This contribution to the State’s greenhouse inventory was evaluated by the California Air Resources Board (CARB) as part of its implementation of Assembly Bill 32, (Nunez, Chapter 488, Statute as of 2006). This act requires CARB and the California Energy Commission to develop reduction measures for environmental greenhouse gas generation in all economic sectors.

Scientists from FREP and the Fertilizing Materials Inspection Program collaborated with CARB to fund research to identify fundamental gaps in the understanding of nitrous oxide generation from the use of fertilizer use in agriculture. The 2011 FREP grants included funding to determine the baseline nitrous oxide levels generated from different agricultural crops grown with and without nitrogen fertilizers. This research is expected to be completed in late 2013.
EDUCATION AND OUTREACH

2011 CONFERENCE

Over 120 individuals attended the 19th Annual FREP Conference held on November 16 and 17 at the International Agri-Center in Tulare, California. Designed to appeal to a broad audience, conference attendees included CCAs (28%), PCAs (21%), consultants (18%), growers (11%), industry members (8%), and government (7%) and university personnel (3%).

Post conference feedback was very positive; over 90% of respondents stated that the conference fulfilled their expectations and over 83% rated it as “one of the best” or “better than most” agricultural seminars. Most attendees responded that the conference provided valuable scientific and practical information on fertilizer use and its effect on the environment.

A diverse panel of speakers shared their perspectives on nutrient management planning, implementing effective nutrient management strategies, and the basics of NPK management. Presentations consisted of a well-balanced mix of general and technical information, current research data, and practical applications. New features introduced at this year’s event included presentations on emerging regulations by water quality agencies, as well as a Certified Crop Adviser panel discussion, both of which were very popular with attendees.

NEW INITIATIVES

FREP funded research has produced over 125 scientific final technical reports. However, the value of this research can only be fully realized if the data can be delivered to the farm level. For this reason, FREP staff is currently developing a web-based database to make this information accessible and convenient to stakeholders, such as consultants, growers, and other interested parties.

In addition, FREP is currently investigating the possibility of creating a Nutrient Management Planning (NMP) training and certification program for Certified Crop Advisors (CCAs). CDFA, in cooperation with the California Certified Crop Advisor Program will be directly involved in developing, planning, and implementing this new initiative. Specific details will be forthcoming.
INSPECTION AND COMPLIANCE

[Group photo of employees]

[Photos of produce: tomatoes, zucchinis]
Program Summary

The Inspection and Compliance Branch oversees the fair and orderly marketing of agricultural commodities in California. The six main programs of the branch are designed to protect producers, packers, shippers, and processors while ensuring the quality of both fresh and processed fruits and vegetables offered to California’s consumers. All program activities are supported by fees and assessments paid by the state’s agricultural industry.

The Shipping Point Inspection Program provides third-party grading and certification services to California’s fruit, nut, and vegetables industries. This industry-funded program provides a nationally and internationally recognized grading and certification service to producers, packers, shippers, and processors. In this way, the program maintains a structure for the orderly and fair marketing of agricultural commodities in California.

The Standardization Program enforces the laws and regulations governing minimum standards for maturity, quality, size, and packaging for more than thirty major agricultural commodities.

The Direct Marketing Program (formerly named the California Farmer’s Market Program) provides opportunities for certified producers to directly market their agricultural products at certified farmers’ markets (CFMs) throughout the state. The Program permits the sale of produce directly to the public without disruption of the normal flow of commercial wholesaling.

The California State Organic Program (SOP) is responsible for enforcing the State and Federal laws and regulations governing the labeling and sale of organic agricultural products. These laws include the Federal Organic Foods Production Act of 1990, the California Organic Products Act of 2003 (COPA), and additional state and federal organic regulations. These statutes and regulations establish standards for the labeling and sale of fresh agricultural products as organic. The department’s continued support and enforcement of organic farming and production methods provide an opportunity for consumers to purchase products that meet with nationally recognized organic standards.

The California Citrus Program and the Avocado Inspection Program are responsible for the enforcement of standards for size, weight, maturity, and other requirements for their respective commodities. Their goal is to protect both industry and consumers by providing uniform inspection to ensure that all products comply with minimum standards of quality.
Shipping Point Inspection Program

Program Summary

The Shipping Point Inspection (SPI) Program provides optional third-party grading and certification service and third party food safety verification audits to the fruit, nut, and vegetable industries throughout California. A Federal-State Cooperative Agreement with the USDA authorizes the California Department of Food and Agriculture inspectors to use federal grade standards for fresh produce, and to issue federal-state inspection certificates recognized nationally and internationally.

Program Trends

SPI programs are expected to grow in 2012, continuing the trend started in 2010. Increases in the number of Federal Market inspections have continued on commodities such as tomatoes, avocados, and kiwis. Most SPI districts have seen increases in the USDA Commodity Purchase Program inspection work in 2011 and expect further growth in 2012.

The Food Safety Auditing programs continued to expand in 2011, and more growth is expected in 2012. These include the California Leafy Green Program, California Fresh Tomato Program, Avocado Industry, Good Agricultural Practices/Good Handling Practices (GAP/GHP), Harmonized Audit, and the Almond Industries Pasteurization Audit Program.

The number of audits conducted for the USDA Country of Origin Labeling (COOL) program quadrupled from 2008 through 2010. But due to a lack of funding the number of audits were reduced in 2011, and the program is expecting another slight reduction in 2012.

California’s agricultural industry has continued to change in 2011 and is expected to continue this trend in 2012, impacting many SPI programs. As the consolidation of businesses continues, industry continues its internal search for cost reductions, including quality control (QC). Industry has started and will continue to utilize internal QC programs as an alternative to SPI QC programs. Industry use of other inspection entities may begin. For example, the cling peach community continues to automate inspections within their industry. Recent developments include an electronic internal flesh color indicator to determine maturity and an electronic pressure tester. Both of these devices remove human subjectivity from the inspection process.

In 2011 customers in nearly all SPI districts utilized SPI more for federal market inspection work. This trend is expected to continue in 2012. This increase is due primarily to the USDA Commodity Purchase Program. Potatoes and tomatoes were the original principal commodities inspected but now have included oranges and pears also.
**2011 Highlights and Accomplishments**

A total of 90,554 SPI inspections were completed in 2011. These inspections included 13,339 Federal inspections, 2,822 Import inspections, 33,415 Tree Nut, 17,223 Grape, 7,716 Tree Fruit, 2,792 Other Fruit, 4,860 Vegetable Row Crops, and 8,387 Other Vegetable inspections. In addition to these inspections, SPI conducted 1,415 Food Safety/ Product Verification audits. These audits included 102 GHP/GAP audits, 589 Leafy Green audits, 146 California Tomato Farmers (CTF) audits, 483 COOL audits, and 95 Almond Pasteurization audits. The accompanying charts on this and the next page summarize SPI activities in 2011.

**Commodity Trends**

The almond industry could continue to regularly grow, pack, and ship in excess of a billion pounds of almonds annually, due to their continued ability to promote their product. At this time there is no reason to think this trend will change, especially with new plantings coming into production in 2012.

In 2011 the Chilean Avocado Industry exported fewer avocados into the California market than in previous seasons. This trend was expected to continue for the foreseeable future, but in 2012 the volume of Chilean avocados into California has increased. Not only did the Chilean avocados volume increase, but California also received avocados from Peru and Mexico. At this time the industry expects this trend to persist for the foreseeable future.

**Reductions:**
The peach, plum, and nectarine industry continues its reduction in production acreage following several difficult marketing seasons.

The pear industry has also reduced acreage in recent years, and this trend appears to be for the conceivable future.
Increases:
Over the past few years the almond industry has continually planted additional acreage and presently this trend is ongoing. As this industry’s production has increased, the industry remains profitable as well.

The olive industries newly found niche in olive oil market is resulting in significant increase of new acreage planted. This trend is not expected to slow in 2012.

In 2011, SPI provided GAP/GHP audits on the following commodities:

- Apples
- Kiwifruit
- Apricots
- Onions
- Broccoli
- Pears
- Cabbage
- Persimmons
- Carrots
- Pomegranates
- Cauliflower
- Potatoes
- Celery
- Squash
- Cherries
- Table Grapes
- Cucumbers
- Tomatoes
- Garlic
- Turnips

Finally, the COOL program is expected to have a slight decrease in requested number of audits in 2012. This labeling law, which took effect in late 2008, requires retailers such as full-line grocery stores, supermarkets, and club warehouse stores to provide customers with information regarding the source of certain foods such as pork, farm-raised, wild fish, shellfish, peanuts, and fresh and frozen fruits and vegetables. The COOL program within SPI has grown rapidly throughout the years, but as in 2011 the program is expected to receive a reduction in the amount of audits in 2012 due to federal funding issues.
STANDARDIZATION PROGRAM

PROGRAM SUMMARY

Standardization statutes establish minimum standards for maturity, quality, size, standard container and pack, and container markings. The Standardization Program ensures enforcement of quality standards, container, labeling, sizing, and maturity requirements at packing, storage, field distribution centers, certified farmers’ markets, and port of entry facilities. The Standardization Program provides services and a regulatory framework to assist industry efforts to increase consumer confidence in the food supply. Standardization inspections take place in fields and packinghouses, wholesale markets, retail distribution centers, retail outlets, and highway inspections stations.

TRENDS AND ISSUES FROM 2011

The Standardization Advisory Committee is looking to encourage new county participation in standardization work. Traditional standardization efforts have occurred at wholesale facilities, field pack operations, and ports; however as consumers become more aware of where their food comes from they look for nontraditional outlets such as farm stands, swap meets, crop swaps, etc. Additional county participation broadens enforcement at these non-traditional sites to ensure consumer protection.

We continue to monitor the ports and the Otay Mesa crossing to ensure substandard imported product does not enter our marketplace. Standardization is working closely with the direct marketing ad hoc group to make the necessary statutory and regulatory changes to facilitate additional direct marketing sales. The continuation of industry assistance in the creation of regulatory enhancements broadens their ability to market commodities.

Standardization program personnel and counties performed inspections at the following locations: San Pedro/Long Beach port; port Hueneme in Ventura; the Mexican/American border crossing; wholesale facilities in Los Angeles, San Diego, Riverside, Orange, San Bernardino, San Mateo, and Ventura; field packing operations; farm stands; certified farmers markets; flea markets and swap meets.
ACCOMPLISHMENTS FOR 2011

Development of an online registration and database program which will increase functionality and ease of access for its customers is still in process.

AVOCADO INSPECTION PROGRAM

PROGRAM SUMMARY

The Avocado Inspection Program ensures enforcement of quality standards, container, labeling, sizing, weights, maturity, and proof of ownership requirements at packing, storage, field distribution centers, and port of entry facilities. The goal is to protect the industry and consumers by providing uniform inspection to ensure that all avocados comply with minimum standards.

TRENDS AND ISSUES FOR 2011

A discussion began by the Avocado Inspection Committee to explore a change to the national standard for Hass avocados. The avocado industry began active engagement in food safety audits through a cooperative agreement with the California Avocado Committee.

ACCOMPLISHMENTS FOR 2011

The avocado inspection program has been seeking reductions and consolidations to streamline operations.

Weights: A total of 31,935 weight tests were performed, 160 non-compliance notices issued, and 13,237 cartons rejected.

Size/Count: A total of 4,325 size/count tests were performed, 16 non-compliance notices issued, and 1,154 cartons rejected.

Maturity: A total of 344 maturity tests were performed, 40 non-compliance notices issued, and 1,238 cartons rejected.

The assessment rate is outlined in the Food and Agricultural Code Section 44975(a). 2011 remittance fees, which are based on crop size, are .15 cents per hundred pounds weight.
DIRECT MARKETING PROGRAM  
(PREVIOUSLY NAMED CALIFORNIA FARMER’S MARKET PROGRAM)

PROGRAM SUMMARY

The Direct Marketing Program is responsible for enforcing the statutes governing certified farmers’ markets (CFMs) and produce sold at or near the point of production. Exemptions are provided to producers through the department’s standardization regulations for minimum size, labeling, standard pack, and standard containers. These exemptions allow the sale of produce directly to the public without disrupting the normal flow of commercial wholesaling. The Direct Marketing Program provides opportunities for certified producers to directly market their agricultural products at over 700 certified farmers’ markets throughout the state and enables non-profit organizations, community-supported agricultural organizations, and local government agencies to operate certified farmers’ markets in both rural and urban areas throughout the state.

The chart below highlights the exponential growth of CFMs from 1977 – 2011. In 1977, there were approximately 12 CFMs in the State of California. In 1988, there were approximately 170 CFMs. By 2000, there were approximately 360 CFMs. In 2011, there are over 700 CFMs operating in the state of California.

There are now over 700 Certified Farmers Markets in California, nearly double the number in 2000.
TRENDS AND ISSUES FOR 2011

In the past, direct marketing has mainly been defined through certified farmers’ markets. As interest in local food movements has increased, direct marketing is now encompassing more forms and facets than before. The program is looking to further encompass other forms of direct marketing such as community and school gardens, farm stands, community supported agriculture, etc.

In an effort to encompass these forms of marketing into the program a Direct Marketing Ad Hoc Committee was formed in October 2011. This committee and its subcommittees continue to meet on a monthly basis to address all issues related to direct marketing.

ACCOMPLISHMENTS FOR 2011

With the encouragement of the Certified Farmers Market Advisory Committee, the model for state enforcement of CFMs was successfully implemented. Inspectors now utilize a market-to-farm inspection. In this model, one can directly correlate what is sold in the market to what is being grown on the farm. This has been an effective verification model.

Development of an online registration and database program to increase functionality and ease of access for customers is still in process.
With the encouragement of the CFMAC, the model for state enforcement of CFMs was successfully implemented. Inspectors from the Direct Marketing Program, Standardization Program, and State Organic Program are currently being cross-trained and utilized to enforce Direct Marketing regulations throughout the state. This method is a cost effective way of ensuring uniformity throughout the state. A total of ten CFMs are selected randomly for inspection every three months. The table below shows the enforcement activity throughout 2011.

### State Certified Farmers’ Market Enforcement Activity for 2011

<table>
<thead>
<tr>
<th>2011 (Calendar Year)</th>
<th>Counties Inspected</th>
<th>Number of Markets</th>
<th>Producers Inspected</th>
<th>Production Site Visits</th>
<th>Number of Non-Compliances</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st Quarter</td>
<td>Sonoma, Santa Barbara, San Luis Obispo, Butte, Shasta, Sacramento, Yolo, Stanislaus, Santa Cruz, San Joaquin</td>
<td>12</td>
<td>198</td>
<td>0</td>
<td>20</td>
</tr>
<tr>
<td>2nd Quarter</td>
<td>Alameda, Monterey, Sacramento, San Joaquin, Santa Cruz, San Luis Obispo, San Mateo, Santa Clara, Ventura, Yuba</td>
<td>9</td>
<td>164</td>
<td>10</td>
<td>12</td>
</tr>
<tr>
<td>3rd Quarter</td>
<td>Riverside, San Bernardino, Merced, Santa Cruz, San Benito, Merced, Kern</td>
<td>2</td>
<td>24</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>4th Quarter</td>
<td>San Bernardino</td>
<td>7</td>
<td>54</td>
<td>3</td>
<td>17</td>
</tr>
</tbody>
</table>
Inspectors from the Direct Marketing Program inspect forty markets around the State each year to ensure compliance with the State's regulations for organic produce.

Each year, 40 randomly selected markets are inspected by the Direct Marketing Program. Beginning in the last quarter of 2010, a new enforcement model was implemented to provide immediate follow-up inspection to production sites when the market inspection resulted in questionable produce. As state inspectors are not limited to county jurisdictional boundaries, this has proven to be a very immediate and effective means of enforcement. The chart above shows program enforcement action by county for 2011.
Citrus Program

Program Summary

The Citrus Program is responsible for protecting the industry and the general public from substandard products and ensuring that the established minimum maturity and quality standards are met. In addition, the Citrus Program is responsible for providing industry with current and accurate data regarding the state’s citrus acreage and citrus crop information.

Trends and Issues for 2011

The number of mature mandarin trees continues to grow in acreage while lemons, navels, and Valencia’s acreage remains largely unchanged.

A petition was received by the department to change the methodology of testing navels to the new California Standard. The procedure for testing remains unchanged, but the formula for calculating the soluble solid/acid ratio would change under this new formula. This petition for regulatory change was received and taken to the Office of Administrative Law for review.

Accomplishments for 2011

In 2010 legislation was passed to specifically authorize the CDFA Secretary to increase/decrease the citrus assessment rate within existing statutorily defined levels. These statutory changes significantly benefited industry by allowing the department to lower assessment rates in 2011. Assessments were lowered due to a sufficient amount of reserve for freeze purposes.

Development of an online registration and database program to increase functionality and ease of access for customers is still in process.
CALIFORNIA STATE ORGANIC PROGRAM

PROGRAM SUMMARY

The Department’s California State Organic Program (SOP) is responsible for enforcing the federal Organic Foods Production Act of 1990, the California Organic Products Act of 2003 (COPA), and other state and federal organic regulations. These statutes and regulations protect organic consumers, producers, handlers, processors, and retailers by establishing standards under which fresh agricultural products may be sold and labeled as organic. The department’s continued support and enforcement of organic farming and production methods provides an opportunity for consumers to purchase products that are grown, handled, and processed in accordance with national organic standards. Approximately 3,200 organic operations are registered with the SOP.

TRENDS AND ISSUES FOR 2011

California leads the nation with the highest number of organic farms, land in organic production, and organic sales. Overall, California represents approximately 19 percent of organic farms and 36 percent of organic sales. In fiscal year 2010/2011, the organic industry continued to grow with approximately 503 new operations registered with the SOP. The SOP is in the process of developing a new database and online registration program that will meet the growing demands and complexities of program administration. The development of the database is part of an overhaul of all electronic data collection systems within Inspection Services and a critical component to modernization and resource allocation of the SOP.

<table>
<thead>
<tr>
<th>Year</th>
<th>Total New SOP Registrants</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>503</td>
</tr>
<tr>
<td>2010</td>
<td>327</td>
</tr>
<tr>
<td>2009</td>
<td>341</td>
</tr>
<tr>
<td>2008</td>
<td>357</td>
</tr>
<tr>
<td>2007</td>
<td>442</td>
</tr>
<tr>
<td>2006</td>
<td>380</td>
</tr>
<tr>
<td>2005</td>
<td>306</td>
</tr>
</tbody>
</table>
ACCOMPLISHMENTS FOR 2011

During 2011, the SOP has continued its efforts to train and collaborate with county agricultural commissioner staff and accredited certifying agents. Curriculum was tailored to the requests of the specific county and included topics such as registration, residue analysis, spot inspections, and enforcement procedures. In addition, SOP staff has begun to collaborate with county agricultural commissioner staff during spot inspections to ensure that the inspections are harmonized. Upon adoption of regulations authorizing state and county personnel to conduct spot inspections and residue analysis on November 5, 2010, 366 spot inspections were conducted in 33 counties, resulting in 26 notices of noncompliance. In addition, state and county personnel collected 72 samples of organically produced agricultural products for testing to detect the presence of residues in violation of national organic standards.

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>SOP Registration Revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011/2012</td>
<td>$1,006,000 (projected)</td>
</tr>
<tr>
<td>2010/2011</td>
<td>$1,006,428</td>
</tr>
<tr>
<td>2009/2010</td>
<td>$918,792</td>
</tr>
<tr>
<td>2008/2009</td>
<td>$991,778</td>
</tr>
<tr>
<td>2007/2008</td>
<td>$916,544</td>
</tr>
<tr>
<td>2006/2007</td>
<td>$814,397</td>
</tr>
<tr>
<td>2005/2006</td>
<td>$654,558</td>
</tr>
</tbody>
</table>
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Division of Inspection Services
2011 Annual Report

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The Division of Inspection Services recognizes with gratitude these Staff Members who retired in 2011:

Feed, Fertilizer, and Livestock Drugs Regulatory Services

Dale Rice

Inspection & Compliance

Randy Pritchard
Donella Boreham
Mary Loflin
Betty Facio

Thank you for your service!