University of California Cooperative Extension

Central Coast Agriculture Highlights

SANTA BARBARA COUNTY FEBRUARY 2005

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INSIDE THIS ISSUE

Winter Fresh Berry Market Could See Changes with Growing Volume of Fruit

Mark Gaskell

Changes in acreage and volume of fresh blueberries, raspberries and blackberries in traditional offshore production areas, combined with growing early season production from California, could signal changes in fresh berry price trends. Discussions with Chilean and Argentine exporters as part of the recent Produce Marketing Association annual convention and accounts published in AmericaFruit magazine (Oct/Dec 2004) suggest that growing acreage and volume of raspberries, blackberries and blueberries are already affecting the price structure during the winter season. Production of blueberries in South America is anticipated to grow by 40% this season as new plantings begin to produce, and those plantings should double production in each of the next three years. Chile, long a supplier of winter berries, is actively promoting the different small fruits in response to growing acreage of fruit in Chile, neighboring Argentina, and Mexico.

Chile ships 40% of their winter fruit volume to US markets and the rest to Europe and Asia. In the berry arena, Chile has concentrated on fresh raspberries but also has significant acreage of blackberries and blueberries. Chilean blueberry sales in the US grew 70% during the 2004 season. Concern over growing acreage of blueberries in Argentina, and significant volume of blackberries and raspberries in Mexico has stimulated US importers to try to move the growing volume of fruit in larger size containers. Off-season berries are routinely marketed in clamshells weighing 4 to 6 oz. with growers seeking the 4.4 oz. package when supplies are light and wholesalers demanding a 6 oz. (or larger) package when volumes are high. Chile has an experienced export association that works on behalf of the berry industry (and other exporters) to promote Chilean fruit and anticipate these types of potential problems.

In a typical year, Chilean blueberry production starts in October and rises slowly to peak in December and January. Growers in Argentina saw a market niche and established new blueberry plantings that are coming off starting in late September and peaking in November and December. Argentina's blueberry volume is also expected to increase by 40% this season and to continue increasing markedly in the next 2-3 years. In the 2004-2005 shipping

season, importers are estimating totals of about 2.5 million pounds from Argentina, and about 20 million pounds from Chile. Importers also report that demand is up however, so they hope to maintain prices for the winter blueberries that traditionally run $18-36 per flat of twelve 4.4 oz. clamshells.

There is nevertheless pressure on the market from the growing volume of blueberries, with marketers preferring to move the fruit in larger packages—12 to 16 oz. for example—as a way to successfully market the greater fruit volume. Growers, happy with the traditional high-value price structure for winter berries, are resisting these changes, but they may be

forced to accommodate these new packages or risk not being able to sell all of their fruit.

Similar situations are occurring with raspberries and blackberries as a result of growing production acreage in Mexico. Mexico first started shipping—mainly blackberries and some raspberries—in the late 1990s when Guatemalan shippers were dropped from US importers' lists because of contaminated fruit. While Mexican blackberries have traditionally occupied an earlier market window than Chilean fruit, Mexico has recently expanded their market presence for blackberries. Mexican growers are increasing the planted acreage of raspberries as they learn to grow them, and experimental blueberry plantings are also being established in Mexico. Fresher fruit and lower shipping costs would be the primary attractions for Mexican fruit over Chilean. Transport costs from Mexico are one-fourth to one-fifth the costs from Chile, and the fruit from Mexico has an additional one to two days of shelf-life. Chile is still the dominant supplier for winter season berry markets primarily due to their volume and experience, so change in shipping trends to new suppliers will be slow. Chilean growers, seeing the market advantages that Mexico has for transportation costs and shelf-life, have already begun investigating joint ventures to produce berries in Mexico.

So what effects will these factors have on California small fruit production?

Clearly, there is growing volume of small fruit in the marketplace more of the year, and demand is growing and will continue to grow. Chile and Argentina and other southern hemisphere producers are pretty much out of the market when the first open field California blueberries, raspberries, or blackberries hit the market in mid– to late spring. Thus, we see prices for fresh blueberries peaking in mid-April. Coastal California blueberry production comes off between February and June depending on location and variety. Florida blueberry production begins in mid-April, and San Joaquin Valley production begins in late April and early May.

There are relatively modest supplies of raspberries and blackberries from California tunneled production throughout the winter months, and the market will continue to pay a premium for this fruit based on freshness and quality. Similarly, there should continue to be a price premium for domestic and locally grown berries of all types for tunnel grown or open field California production. Still, there will likely be a downward trend in price even for off-season domestic fruit.

Blackberries and raspberries can and do enter the US from Mexico during March to June market windows, and these volumes should continue to grow. These increasing volumes put more downward pressure on early season and off-season prices for California fresh fruit. If Mexico successfully adapts low-chill blueberry varieties to Mexican growing conditions, look for similar trends with blueberries.

Sensory Evaluation of Olive Oil

Mark Gaskell

A short course on olive oil tasting is planned for **March 11 and 12, 2005,** at the Radisson Hotel at 1111 East Cabrillo Blvd. in Santa Barbara. Paul Vossen, Farm Advisor with UC Cooperative Extension in Sonoma County, is the event organizer. Paul is co-leader of the California Olive Oil Council's tasting panel, and he has joined with the California Olive Oil Council and University of California Cooperative Extension to organize this event.

Participants will be taught International Olive Oil Council official examination procedures for olive oil tasting. Discussions will cover all aspects of the process of sensory evaluation. Following training and practice sessions, participants will be evaluated on their ability to determine a range of positive quality attributes, and to distinguish between specific olive oil quality defects. The short course will include lectures interspersed with hands-on training and tasting practice sessions.

The short course runs from 8:30 a.m. to 5:00 p.m. both days, and the enrollment fee of $565 includes two lunches and all of the olive oil tastings. Discounted rooms are available at the Radisson for the event. For more information or a registration form please call 1-800-752-0881.

Putting the Farm Bill to Work for California Specialty Crop Growers

Franklin Laemmlen

Photo Courtesy of NRCS

Growers understand better than most people the value of practices that conserve natural resources and protect the environment. They also face an increasing array of environmental and regulatory challenges from water quality to endangered species. While there are steps that growers can take to address those challenges, implementing those practices are often very costly. Now there is a program that can provide financial assistance for growers to cover additional costs of using more environmentally sound farming practices.

The Environmental Quality Incentives Program (EQIP) is a voluntary program administered by the Natural Resources Conservation Service (NRCS) that provides payments to eligible growers for the use of a wide range of practices on their farm. Growers can receive incentive payments to implement practices such as integrated pest management and nutrient management. Cost-share payments are also available to assist with installation of other structural and vegetative practices such as irrigation system improvements. This past year more than $47 million were available for California farmers and ranchers through EQIP.

Since growers may not be familiar with the way this program can benefit them, the Center for

Agricultural Partnerships, California grower organizations, PCAs, University of California Cooperative Extension, and the California NRCS are cooperating in a program to increase grower awareness about EQIP and use of conservation practices. The "Putting the Farm Bill to Work" program will be working with growers and PCAs to demonstrate how EQIP can work and to provide support for growers to participate.

Your local NRCS staff can provide you information about key resource concerns and the application process. You can find the NRCS office in your county at: *http://www.ca.nrcs.usda.gov/about/* Click "Find a service center" at the left to access the directory.

If you'd like more information on production and environmental benefits of using IPM on your farm and how EQIP and other conservation programs may assist, visit *http://www.Agcenter.org/progfarmbill.html*

Source: CAPCA Advisor, Nov-Dec 2004 issue

Neonicotinoid Insecticides and their Potential Use in Cool Season Vegetable Crops

Eric T. Natwick*

Neonicotinoid insecticides are systemic insecticides efficacious against whitefly, aphids and flea beetles. They alleviate many of the application problems associated with control of aphids and whiteflies. The target site for neonicotinoids is the nicotinic acetylcholine receptor in the insect nervous system, therefore, they are neurotoxins.

Neonicotinoid insecticides are relatively safe for most beneficial insects, but may be harmful to some insects such as lady beetles. Most neonicotinoid insecticides have activity through soil application and as foliar sprays. Acetamiprid (Assail) has contact and systemic activity against many insects including excellent whitefly control and has some ovicidal activity applied as a foliar spray. Acetamiprid is not readily available to plants in the soil and, therefore, must be used as a foliar spray. Clothianidin (Belay & Clutch), Dinotefuron (Venom), Imidacloprid (Admire & Provado), Thiacloprid (Calypso), and Thiamethoxam (Actara & Platinum) are systemic as a foliar spray, soil or seed treatment and are also efficacious when applied through drip irrigation. Imidacloprid is relatively immobile in the soil and requires precise placement for root uptake to occur. Thiamethoxam, thiacloprid, dinotefuron, and clothiadin move readily through the soil, allowing side-dress applications to be pushed into the root zone with furrow irrigation. Performance of each compound varies with the crop and method of application.

Potential Uses of Neonicotinoid Insecticides in Lettuce and Cole Crops						
Active Ingredient	**Trade Name**	**California Label ****	**Pre-Plant Soil Injection**	**Drip Irrigation**	**Side Dress**	**Foliar Spray**
Acetamiprid	Assail	yes	no	no	no	yes
Clothiadin	Belay & Clutch	no no	yes no	yes no	yes no	no yes
Dinotefuron	Venom	no	yes	yes	yes	yes
Imidacloprid	Admire & Provado	yes yes	yes no	yes no	no no	no yes
Thiacloprid	Calypso	no	no	no	no	yes
Thiamethoxam	Actara & Platinum	no no	no yes	no yes	no yes	no yes

* Eric Natwick is a UCCE Farm Advisor-Entomologist in Imperial County.

** Registration status in insecticides may change. The table includes the registration status for California at the time of publication and does not imply an endorsement or recommendation from the University of California. Always have a current label in hand before making a crop specific recommendation.

The Use of Brassica spp. as Cover or Green Manure Crop in Crucifer Production

Franklin Laemmlen

There has been a recent surge in the use of *Brassica* spp., grasses and legume species mixes as cover and/or green manure crops on cool season vegetable production ground. The premise is that besides tying up nitrogen to prevent leaches and to improve soil structure, the mixes will act to reduce some pathogen and weed seed populations in the soil. All these assumed benefits are useful and of value to the grower. However, as with all "coins," there is a flip side.

On the Central Coast, one parasite of crucifer crops and spinach about which all growers need to be concerned is cyst nematode, *Heterodera schachtii.*

Virtually all produce fields are infested with this pest, and growers ignore cyst nematode at their peril.

So what is the problem with the above mentioned cover crop mixes? The following is a listing of known hosts for cyst nematode.

Table 1. Host Plants of the Sugar Beet Cyst Nematode (*Heterodera Schachtii)*

The following host lists[1] of cultivated and weed plants are reported to be hosts of the cyst nematode.

I. ECONOMIC CROPS		II. WEEDS	
Black mustard	*B. nigra (L.), Koch.*	Black nightshade	*Solanum sarrachoides*
Blackeye cowpea	*Vigna sinensis Endl.*	Broadleaf dock	*Rumex obtusifolius L.*
Broccoli	*Brassica oleracea L.*	Burclover	*Medicago polymorpha L.*
Brussels sprouts	*Brassica oleracea L.*	Common hemp nettle	*Urtica dioica L.*
Cabbage	*Brassica oleracea L.*	Curly dock	*Rumex crispus L.*
Cauliflower	*Brassica oleracea L.*	Fiddleleaf dock	*Rumex pulcher L.*
Chinese cabbage	*Brassica pekinensis (Lour.)*	Lambsquarters	*Chenopodium album L.*
Collards	*Brassica oleracea L.*	London rocket	*Sisymbrium irio L.*
Garden pea	*Pisum sativum L.*	Nettleleaf goosefoot	*Chenopodium murali L.*
Kale	*Brassica oleracea L.*	Nightshade	*Solanum sarrachoides*
Kohlrabi	*Brassica oleracea L.*	Pigweed	*Amaranthus retroflexus L.*
Pearson XL tomato	*Lycopersicon esculentum Mill.*	Poison hemlock	*Conium maculatum L.*
Radish	*Raphanus sativus*	Purslane	*Portulaca oleracea L.*
Rape	*Brassica napus*	Shepherd's purse	*Capsella bursa pastoris (L.) Medic.*
Red cabbage	*Brassica oleracea L.*	Smart weed	*Polygonum lapathifolium L.*
Red table beet	*Beta vulgaris L.*	Sowthistle	*Sonchus oleraceus L.*
Rhubarb	*Rheum rapontiecum L.*	Stinging nettle	*Urtica urens L.*
Rutabaga	*B. napabrassica Mill.*	Wild mustard	*Brassica campestris L.*
Sesbania	*Sesbania exaltata*	Wild radish	*Raphanus sativus L.*
Spinach	*Spinacia oleracea L.*	Wildbeet	*Beta* spp.
Sugar beet	*Beta vulgaris L.*		
Sweet pea	*Lathyrus odoratus L.*		
Turnip	*Brassica rapa L.*		

[1] Host list taken from the Compendium of Beet Diseases and Insects, Whitney and Duffus, APS Press, 1986, and the Journal of the American Society of Sugar Beet Technologists. 13:573-603 (1965). A.E. Steale.

You will note (underlined), several species in the "cyst host list" are often on the seed tag list of the cover crop seed bag. I do not have research in hand, which shows that these cover crops increase cyst nematode populations. In fact, if these cover crops are grown for short durations in the winter, they may even help decrease populations because they may act as suicide hosts for the nematode, i.e., the nematode can start feeding, but then the crop is destroyed before the life cycle can be completed.

I think caution in the use of cover crops containing *Brassica* spp. is in order. Monitor your cyst nematode populations before and after growing these cover crops to make sure you are not creating a problem while you attempt to improve your soil.

Livestock Cloning

Wayne Jensen

Photos Courtesy of University of Tennessee

How is livestock cloning accomplished? To answer this sometimes controversial question, Dr. Alison Van Eenennaam, Cooperative Extension Animal Genomics and Biotechnology Specialist in the Department of Animal Science, University of California, Davis, provided the following information.

A clone is an organism that is descended from, and genetically identical to, a single common ancestor. Animals can be cloned by embryo splitting or nuclear transfer. Embryo splitting involves splitting the multicellular embryo at an early stage of development to generate "twins." This type of cloning occurs naturally and has also been performed in the laboratory with a number of species.

Cloning can also be achieved by nuclear transfer where the genetic material in the nucleus from one cell is placed into a "recipient" unfertilized egg that has had its genetic material (nucleus) removed by a process called enucleation. It is then necessary to activate the egg to start dividing as if it had been fertilized. In mammals the egg must then be artificially placed into the womb of a surrogate mother where it will grow until birth. The first mammals cloned by this process were born during the mid-1980s, almost 30 years after the initial successful experiments with frogs. Numerous mammalian species have been cloned via this procedure, including mice, rats, rabbits, pigs, goats, sheep, cattle, horses, and rhesus monkeys. There are no documented cases of human cloning.

Dolly, the sheep, was the first animal to be cloned from an adult cell. In this case, the genetic material in the nucleus was transferred from an adult somatic (non-egg) cell that had been cultured in the laboratory. This process, which allows cloning to be performed on an adult animal whose traits are well known, is called somatic cell nuclear transfer. A diverse range of adult tissues has been used to successfully clone a variety of species including cattle, pig, horse, cat, rabbit, goat, and fish.

Do clones develop normally? Currently, the cloning procedure is inefficient because the percentage of adult cell nuclei that develop into live animals after transfer into the enucleated egg cell is very low. High rates of pregnancy loss have been observed at various times after placement of the egg containing the adult cell nuclei into recipient animals. Various abnormalities have been observed in cloned cows and mice after birth, and this appears to be at least partially dependent on the type of tissue from which the transferred nucleus was derived. The reasons for the low efficiency of cloning by nuclear transfer are not known. Current ideas are that it might be related to the fact that the reprogramming, which must occur in the nucleus from the somatic (non-egg) cell, is not sufficient. The genetic material in the nucleus goes from directing the production of an adult somatic cell to directing the production of a whole new embryo, two very different processes.

To date there are no published scientific studies comparing the composition of meat and milk products of livestock clones, their offspring, and conventionally-bred livestock. Several studies are currently in progress to address this topic. The main underlying food safety concern with clones is whether the nuclear reprogramming that occurs during the cloning process has any influence on the composition of animal food products. Producers of cloned animals are currently observing a moratorium on the sale of these animals into the food chain while waiting for guidance from the U.S. Food and Drug Administration (FDA) on the marketing of these animals. The FDA's Center for Veterinary Medicine is ultimately responsible for evaluating the food safety and animal health implication of cloning, as well as its environmental impact.

Why are animals being cloned? Cloning involves

the production of genetically identical individuals and is not genetic engineering per se, but there is a logical connection between the two technologies. Cloning offers the opportunity to make genetically engineered or transgenic animals more efficiently from cells that have been genetically modified in the laboratory. The main application of livestock cloning will be the production of animals from cells that have been genetically engineered for the purposes of human medicine. The first genetically engineered (transgenic) mammalian clones were sheep born in 1997, carrying the genetic information to make the human clotting factor IX in their milk, which is an important therapeutic treatment for hemophiliacs. Since that time, cloned, genetically engineered animals have been reported in other species, including goats that produce alpha-I antitrypsin, a cystic fibrosis therapeutic treatment, in their milk. "Xenotransplantation-friendly" pigs, lacking the cell surface protein that triggers organ rejection, are also being researched for use in transplantation surgery. In the future, it may be possible to produce agricultural livestock with increased disease resistance or improved milk composition. Cloning from frozen tissue samples is also being used for the preservation of rare and endangered species such as the Banteng, and even extinct species such as the Asiatic cheetah.

Current Research & Information of Interest

Franklin Laemmlen

- Comparative Efficacy of Fungicides for Management of Downy Mildew on Broccoli in 2004.
- The Desert Aphid Complex in Leafy Vegetables: Management with Foliar Insecticides.
- Canarygrass Control in Wheat.
- Recent Disease Developments in Lettuce.

West Nile Virus Update

Wayne Jensen

Last spring I included an article in this newsletter regarding the importance to vaccinate your horses to prevent West Nile Virus (WNV). The following table contains the data collected by California Department of Food and Agriculture that documented the number of confirmed cases of WNV by county during 2004. It documents the fact that this disease was found in many counties throughout the state, and a high percentage of the horses contracting the disease died as a result. I assume many of these deaths were from unvaccinated horses.

It is interesting to note that no horses in Monterey, San Luis Obispo or Santa Barbara Counties were reported as contracting this disease. However, that was last year. Spring is just around the corner. The recent rains and the prediction of more to come would suggest that higher mosquito populations in this region are a real possibility. I suggest you talk to your veterinarian in the near future to plan a program to protect your horses from West Nile Virus.

WEST NILE VIRUS MONTHLY CONFIRMED EQUINE CASE REPORT BY COUNTY (11/19/2004 -12/17/2004)					
County	**Cases this Week**	**Cases YTD**	**Pending Cases**	**Exposed Non-Clinical**	**Equine Died or Euthanized YTD**
Alpine	0	3	0	0	0
Butte	0	18	0	0	7
Colusa	0	6	0	0	1
Fresno	0	20	2	3	6
Glenn	0	12	0	0	4
Inyo	0	3	0	0	2
Kern	0	46	0	0	20
Kings	0	1	0	0	0
Lake	0	4	0	0	1
Lassen	0	4	0	1	0
Los Angeles	0	16	0	0	8
Mendocino	0	3	0	0	0
Merced	0	3	0	0	1
Orange	0	2	0	0	1
Placer	0	26	0	1	10
Riverside	0	101	1	6	52
Sacramento	0	83	0	2	43
San Bernardino	0	36	0	0	15
San Diego	0	2	0	0	2
San Joaquin	0	19	0	0	5
Shasta	0	30	0	0	10
Siskiyou	0	5	0	0	3
Solano	0	1	0	0	1
Sonoma	0	1	0	0	1
Stanislaus	0	7	0	0	2
Sutter	0	11	0	0	4
Tehama	0	44	0	0	17
Trinity	0	1	0	0	0
Tulare	0	13	0	0	5
Ventura	0	3	0	0	1
Yolo	0	1	0	0	0
Yuba	0	11	0	0	8
TOTAL	**0**	**536**	**3**	**13**	**230**

Announcements

Results of the 2004 Fresh Market Tomato trials, conducted in the southern Joaquin Valley, are now available. Contact the UC Cooperative Extension office in Santa Maria (805/934-6240), UCCE Tulare (559/685-3303), or UCCE Hanford (559/582-3211 ext. 1-2730) to receive a copy.

Need information on GMO's, GE, or biotechnology? Contact the Santa Maria UC Cooperative Extension office at (805) 934-6240.

The **Proceedings of the 12th Annual Fertilizer Research and Education Program Conference** are now available. To order copies contact: CDFA, Fertilizer Research and Education Program (916/445-0444), or e-mail Joann Jaschke (jjaschke@cdfa.ca.gov)

A **Seasonal Guide to Environmentally Responsible Pest Management Practices in Almonds** is now available. Ask for leaflet 21619. The price is $7 plus tax ($7.54). Make check payable to: UC Regents. Copies may be obtained from the Santa Maria UCCE Office (805/934-6240).

California Agriculture Symposium
Challenges and Opportunities

The **California Agriculture Symposium** is set for March 23-24, 2005, at the Arden West Hilton in Sacramento. Guest speakers will include Ann Veneman, former head of USDA, and A. G. Kawamura, head of CDFA. Topics will include marketing, technology, management and policy sessions. For registration forms call (805) 934-6240, or go to: CalAgSymposium.org

The Agricultural Issue Center along with the California Chapter of the American Society of Farm Managers and Rural Appraisers is sponsoring the **2005 Spring Outlook Conference.** This event will focus on the outlook for California agriculture for the coming year and the drivers behind industry changes. A highlight will be the release of the analysis of farm land values for 2005.

The date for the conference is **April 21, 2005.** More information will be coming.

The **John D. Isaacs Marine Science Scholarship** program will receive applications for the 2005 awards until **April 1, 2005.** For application forms go to: http://www.csgc.ucsd.edu then follow the Education link to Isaacs Scholarship.

The **2005 PAPA Seminar calendar** is now available. Contact our office (805/934-6240), or PAPA (831/442-3536) for dates and locations convenient to you.

Did You Know That . . . .

every potential new plant protection product is subjected to 120 separate tests, which can take 10 to 20 years and cost $50—$150 million dollars before that product is put into commercial use? Only one in about 20,000 potential new chemicals makes the grade!

Did You Know That . . . .

California has the toughest plant protection product laws in the USA and maintains its own pesticide regulation and monitoring system?

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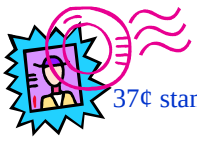

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