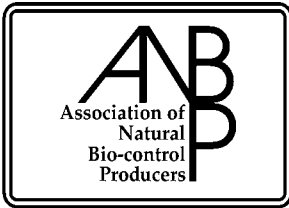


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Bio-control Matters

President's Corner:

By Richard Ward, President, ANBP

It has been a busy period since our last newsletter and all at ANBP have been busy in various capacities.

Since our last letter, ANBP has had its "Strategic Planning Meeting" at Lake Tahoe, California. I would like to thank all those that attended, especially those who are not on the Board and attended in an effort to be part of ANBP's future planning. We worked very hard over a two and a half day period and I think we came away with lots to think about, consolidate and, hopefully, put into action when we meet again in February of 2007. I would also like to welcome Rene Ruiter to the Board of Directors. Rene replaces Andrea Davenport who resigned just prior to our September meeting.

Rene and I attended the NAPPC (North American Pollinator Protection Campaign) meeting in Washington DC. There are, at the moment, ongoing discussions and concerns about how best to protect North America's natural pollinators. These include birds, butterflies and bees of many different species. For those of you who are avid stamp collectors, there will soon be an issue of US stamps released that depict various natural pollinators.

Brian Spencer and I attended the ABIM (Annual Bio-control Industry Meeting) in Lucerne, Switzerland, in October. This was the first annual meeting held by IBMA and it is planned for them to hold a meeting/conference each year such as ANBP does. There were many topics discussed and it was a good opportunity for Brian and I to meet other colleagues from the industry. While there I discussed with Bernard Blum the possibility of our two organizations working more closely together in the future and he indicated that he



Lake Tahoe was the site of Conference 2007 for Strategic Planning.
Participants included (l. to r.) Sinthya Penn, Brian Spencer, Rene Ruiter, facilitator Maclay Burt, Tom MacDonald

(Continued on page 3)

ANBP's Mission is to address key issues of the biological control industry through advocacy, education, and quality assurance.

ANBP Board of Directors:

- Richard Ward, President (Biobest Canada Ltd)
- Kimberly Gallagher, Vice President (Sterling Insectary)
 - Eda Reinot, Secretary (Becker Underwood)
 - Dan Cahn Treasurer (Syngenta Bio-line, Inc.)
 - Carol Glenister (IPM Laboratories)
 - Angela Hale (Bug Factory)
 - Tom MacDonald (MGS Horticultural Inc.)
- Rene Ruitter (Koppert Biological Systems, Inc)
- Brian Spencer (Applied Bio-nomics Ltd)

ANBP Committees:

- **Regulatory:** Cahn (chair), Ruitter, Warner, Spencer, Ward
- **Research:** Hale (Chair), Cahn, MacDonald, Reinot, Spencer, Luczynski
- **Liason and Education:** Gallagher (Chair), Luczynski, Currie, Nyrop, Spencer, Lepple
 - **Nominating:** Hale (Chair), all Board members to participate
 - **Audit:** Spencer (Chair), all Board members to participate
- **2007 Conference:** Lepple to lead, Glenister, Hale, Ward, Reinot
 - **QC:** Glenister (Chair), all ASTM members to participate
 - **Membership:** Ward (Chair), Penn, MacDonald, Diaz, Currie
 - **Marketing and Public Relations:** Reinot (Coordinator)

“Bio-Control Matters” is published by the Association of Natural Bio-control Producers four times per year to provide members with information, thought and opinion on biological control affairs. ***Bio-Control Matters*** advocates the interests of commercial biological control and the public interest of quality agricultural production and environmental protection. ***Bio-Control Matters*** welcomes contributions of comment and opinion, as well as articles of general interest. All contributions must be signed by the contributor. Send contributions for consideration to Maclay Burt, ANBP Executive Director, 2230 Martin Drive, Tustin Ranch CA 92782. Phone/fax (714) 544-8295. (E-mail execdir@anbp.org). Published contributions may not necessarily reflect the views or policy of ANBP.

ANBP was formed in 1990 by commercial insectaries to provide a united voice in regulatory issues facing the industry. ***ANBP*** is also dedicated to quality standards and educating the agricultural and academic communities about the importance of biological pest controls for pest management. ***ANBP*** membership exceeds 100, including 46 producers and/or suppliers. Through its efforts, ***ANBP*** is recognized as ***THE*** spokesman for the commercial biological control industry.

(Continued from page 1)

would like to visit ANBP in North America sometime in 2007. The ANBP poster was displayed at this meeting and a number of membership forms were handed out.

I also attended this year's Hortifair in Amsterdam in early November where I continued some of my discussions from the AIBM meeting. As always, the Hortifair was an interesting array of products, machinery, technology, and of course, flowers and plants from all over the world.

In mid-November I attended the ESC's (Entomological Society of Canada's) annual meeting in Montreal, Canada, where I gave a talk on "ANBP, who we are and what we do". I was very pleased by the turn out we received at the talk and while questions were limited due to time constraints, I had as many questions as time would permit at the end as well as after during coffee break. Again, I hope this will parlay into more interest and more membership in ANBP.

ANBP's Conference 2007 is still in the planning stages, but it has been decided that it will be held jointly with the IOBC/AMRQC working group in Montreal, Quebec, from October 21st to 25th, 2007. The last IOBC/AMRQC meeting was held in September 2003, in Montpellier, France.

There has been a report that the State of California is going to offer payments of up to US \$125.00 per acre to farmers using comprehensive IPM techniques. The USDA's Natural Resources Conservation Service in collaboration with the University of California's Co-Operative Extension Service is reportedly operating this incentive program. Payments are to be based on IPM guidelines drawn up by the University. The report indicates that guidelines exist for almonds, cotton, grapevines, nectarines, peaches and plumbs. If this is indeed correct, this could mean a huge boost for our industry.

In closing, I would also like to take this opportunity to thank the Board for having the confidence to re-elect me for another two-year term as President. I deem it an honor and a privilege to serve the Board and the industry in this capacity.

Lastly, I would like to wish you all a very Merry Christmas and a Prosperous and Healthy 2007.

Contributing Members:

ANBP is pleased to recognize the following members for their interest in biocontrol and their generous support of ANBP's programs and goals.

- **California Avocado Commission**
 - Donald L. Flaherty
 - Sunkist Growers, Inc.
- **The Morning Star Packing Company**



Carol Glenister reports

About two years ago, the ANBP board, ASTM members and AMRQC committee agreed to strive for a joint meeting to facilitate the exchange of information on quality and mass rearing issues. IOBC is the International Organization for Biological Control. AMRQC is the acronym for the Arthropod Mass Rearing and Quality Control. It is an IOBC working group with the mission of facilitating and advancing cost-effective rearing of high-quality insects and other arthropods in support of biological control and integrated pest management. The last AMRQC meeting was held in September 2003 in Montpellier France. To learn more about AMRQC and to see proceedings from past meetings, go to <http://users.ugent.be/~padclerc/AMRQC/index.html>

Check the ASTM article for information on the current activities of the ASTM subcommittee for natural enemies.

Our host, Dr. Jean-Louis Schwartz of Canada's BioControl Network has been working hard reviewing venues in Montreal and expects to site the meeting at the DoubleTree Plaza Hotel in Montreal. We anticipate many good discussions and a field trip to greenhouse facilities near Montreal that use biological control. To learn more about Montreal, he recommends the following websites:

<http://www.tourisme-montreal.org/B2C/00/default.asp>
<http://www.bonjourquebec.com/qc-en/accueil0.html>
<http://www.bonjourquebec.com/qc-en/montreal0.html>

For more information as it emerges and for Conference 2007 registration, go to the ANBP website www.anbp.org beginning in January, 2007

ASTM Committee:

Chair Carol Glenister reports

ASTM September 30, 2007 meeting Summary

Standards Roll Call showed 3 standards ready for ballot (*Aphidoletes*, *Encarsia* and Terminology), 5 in their final draft stage, 3 drafts in progress, 2 on hold, and 3 new. Of the 17 efforts, 2 are revisions (*Encarsia* and *Phytoseiulus*), so we actually have 15 projected standards.

Maclay Burt facilitated a session to discuss, "Why are we doing ASTM?" The reasons submitted were as follows:

- to have industry agreement on testing standards
- to facilitate 3rd party testing
- objective testing
- forum for self regulation
- foundation for ANBP brand
- develop a manual "booklet"
- support QA of beneficials

A great deal of discussion centered on whether the Fly Parasite Specification should add a definition of a fly parasite "unit" or that should be left up to the discretion of the producing company. This is an interesting debate because it is just the opposite of the debate on *Encarsia* where everyone has agreed that the number of wasps expected to emerge should be the standard, not the number of parasitized whitefly supplied. Some believed that the companies have the right to name the contents of their product (whatever it might be) and then supply what they say they are supplying. Others believed that companies should claim only the number of fly pupae with fly parasites inside them, not the number of wasps expected to emerge from those pupae. The reason this is more intractable than the *Encarsia* debate is that there is a large range in the number of parasites likely to emerge from each pupa, literally anywhere from 0 to 20 depending upon the species of parasite and parameters of production. The final conclusion was that we should at least offer a method of evaluating content, and least for now, not specify the definition of the unit.

Norm Leppla briefly discussed a QA paper that Norm, Carol, Eda, Angie, Anna, Brian, and Richard are writing to help the scientific community understand the QA needs of our industry.

Carol Glenister presented the next level to attain in the ASTM process: Inter-Laboratory Testing. Basically, samples from an individual batch need to be sent to 10 or more laboratories to be assessed and the feedback analysed. Carol anticipates that this could easily be done for the less perishable product that will not be so variably affected by shipping. We need to chose a species to trial the Inter-Laboratory Test protocol.

The group discussed and brainstormed ways to increase and balance membership among the various groups necessary for balanced voting: ASTM requires that more than half the members be users and academic or govern-

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ment and the rest be producers.

Housekeeping efforts included division of labor, and election of officers: Carol: Chair, Eda, Secretary, and Joe Vorgetts, Vice Chair. Carol is preparing to hand on the gavel, so there was some discussion about succession, but no clear plan as of yet.

Regulatory Report:

Chair Dan Cahn reports

At the ANBP Lake Tahoe meeting we had a discussion with Peter Price, a legislative analyst based in Sacramento, about the possibilities of exempting biological controls from California state sales tax. Peter agreed to investigate the issue, meet with the staff at the Board of Equalization and to provide us with tactical alternatives.

There are two ways to address the tax status of any particular product. One is through interpretation of current regulations and guidelines and the second is to introduce legislation that would specifically change the regulations.

In California, animals used for food, seed and fertilizer are exempt from tax. Other agricultural inputs such as pesticides and certain soil amendments or inoculants are taxable. Animals other than those used for food such as earthworms are taxable. The BOE guidelines specifically mention biological controls such as ladybugs as taxable.

There does not seem to be much room for us to argue that biological controls are part of the end product that is consumed or that they are nutritive. Apparently the producers of soil amendments have not succeeded in getting their products included with NPK and other fertilizers with measurable plant nutrients, allowing them to be exempt. So it seems unlikely that we could make a convincing argument to include us with fertilizers.

The other avenue available to us is to introduce a bill to the legislature that specifically exempts biological controls. Peter feels that an environmentally friendly bill like this would have little trouble in finding a sponsor. We can make convincing argument of the benefits of biological control and it is consistent with other state policies to encourage sustainable agriculture and reduce broad-spectrum pesticide use. We can also make the argument that the impact to the state treasury will be very small.

However, Peter anticipates opposition by the agricultural chemical lobby on the basis that if we receive an exemption they also want similar treatment. There is also automatic opposition from the Revenue and Taxation Committees. There is a long line of producers that want their products exempt from taxation and most bills are killed by these committees.

Still, there is still a fighting chance we could succeed. This brings us to the cost of sponsoring a bill. Peter estimates cost of writing and moving a bill forward at \$2500 per month for the nine month legislative session. There would also be time and travel for ANBP to meet with senators and assemblyman as required. Given our limited budget and understanding that this effort has limited interest for members outside of California we may need to look at extraordinary financing if we want to move forward.

Website Update:

Chair Kim Gallagher reports

We are continuing to keep the website as update-to-date as possible by doing monthly revisions. Also, we are planning to add a few new features to the website including a "Benefits of Membership" page.

We are working on a database and search engine for the website where a person can enter a word, such as lacewings, and general information as well as member products will come up. If any members need to add their product list to the website, please download the Excel template from the website and then forward it to kim@sterlinginsectary.com. Revisions to current product lists can be emailed to the same address. We are collaborating with Dr. Norman Leppla and his graduate students at the University of Florida IPM Florida Program on this large undertaking. Thank you for volunteering Norm and students!

Other ideas that we are discussing include adding a resume of ANBP accomplishments; randomizing our member list so, each time the member page is opened, a different member is listed first; adding a "short list" of suppliers that have submitted a product list; and setting up an intra-net (password protected area) for presentations, articles, and other information for Members only.

ANBP Liaison Council:

In October, 2006, The ANBP Board of Directors formally established a Liaison Council to (1.)advise the ANBP, (2.) enhance two-way communication and understanding with the many players that affect our industry, provide specific technical expertise, and (3.) honor people that make special contributions to our organization.

A first draft mission statement is: "Enhance growth of support systems for commercial biological control through communication, coordinated actions, and creative synergies."

The University of Florida's Institute of Food and Agricultural Sciences (**IFAS**) newsletter has the following article describing the new Council.

*"UF entomologist **Norm Leppla** is one of three permanent members of the first liaison council of the Association of Natural Bio-control Producers.*

The three had been informal advisers to the ANBP, the nonprofit organization that represents those who produce and supply insects and mites for pest management, but their status was made official at the group's annual meeting, held Sept. 29-Oct. 2.

*Leppla, director of IFAS' statewide integrated pest management program IPM Florida, is joined by **Jan Nyrop**, Cornell University's entomology chairman, and **Anna Luczynski** of BioBugs Consulting Ltd. of Canada.*

The Council will lend technical expertise, give advice and enhance the group's communication with scientists and educators."

Here is an interesting summary of the Council's Chair, **Norm Leppla's** presentation at ANBP Conference 2006: *The Liaison Committee Chair, Kim Gallagher, asked me to present a thought-provoking topic and I selected opportunities for biological control in areawide integrated pest management. To exemplify some of the concepts,*

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I selected two current examples. The first is our IPM Florid-led publication of a "Grower's IPM Guide for Florida Tomato and Pepper Production" (<http://ipm.ifas.ufl.edu/>). The Guide presents essential information for up front planning of crops to minimize pests by selecting the best cultural, biological and chemical control practices for a given location. My introduction describes the concept and there is a chapter devoted exclusively to biological control. However, wide adoption of augmentation biological control will depend on research that demonstrates the effectiveness of natural enemies. The second example is an extraordinarily successful IPM program for asparagus and artichoke plantations in Peru. An entire valley is essentially under biological control, using *Chrysoperla*, *Trichogramma*, *Podisus*, *Orius*, and *Nabis*. This has enabled an overall 90% reduction in pesticide use (<http://www.ipmcenters.org/ipmsymposiumv/>, available presentations). This IPM success was presented by Jorge Fernandini, General Manager, IQF del Peru, Lima, Peru, at the Fifth National IPM Symposium, "Delivering on a Promise," held in St. Louis, MO on April 4-6, 2006. These two examples clearly show the advantages of practicing biological control within the context of IPM and on an area-wide basis.

News from NAPPO and Canada:

Brian Spencer reports

Climate change has drastically affected us in Canada. This year we got the Hurricanes that the US traditionally gets, on our West Coast. Things have warmed up here so much that Canada has had to change its' national game from Hockey, back to Basketball. We will have to make some changes to the game because of human rights regulations. For example; the basket will have to be lowered by over 5 ft so the average Canadian can "slam dunk". More on this important topic later.

It appears that the Pest Management Regulator Advisor is attempting to harmonize its' list of approved chemicals with the US. There have been a lot (2 or 3) of new registrations lately. The main focus is to allow Canadian producers to use the same chemicals as the American producers so they can export their product into the US. There argument has always been that there is "Fair Trade" on the vegetables and the US product coming into Canada may have traces of chemicals that are not permitted for the growers to apply, but are permitted to be in or on the product.

NAPPO has ratified RSPM 26 - Guidelines for Certification of Commercial Arthropod Biological Control Agents moving into NAPPO member Countries. You can see the final document at NAPPO.org Go to "documents/reports", then "standards/decisions", then "NAPPO Standards", then go to RSPM 26. If you go to the "implementation plans" on the right, you will see the time tables that the 3 countries will use. It is important to note that the US is now projecting an implementation date of 2011. Canada and Mexico are still committed to 2008. This guideline, aside from adding to the paperwork that we all love, will finally provide American producers with a document that they can use to export their product.

At the October NAPPO meeting, the Biological Control Panel was kept alive by giving it 4 new "charges". These are;

1. Complete a NAPPO discussion paper on taxonomic expertise in biological control activities.
2. Review RSPM No 7 Guidelines for Petition for release of Exotic Phytophagous Agents for the Biological control of Weeds, and RSPM No. 12 Guidelines for Petition for Release of Exotic Entomophagous Agents for the Biological Control of Pests, to determine whether they should be archived, in light of revisions to ISPM No. 3 Guidelines for the export, shipment, import and release of biological control agent and other beneficial organ-

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isms.

3. Develop NAPPO guidelines for introduction of non-Apis beneficial insects.
4. Exchange information on biological control activities in NAPPO countries.

Please note in 3 above, "non-Apis" . This is because there is a turf war between "Plant Protection" and "Agriculture". "Agriculture" carries a much bigger stick.

ANBP's Strategic Plan:

The principal purpose of Conference 2006 was to revisit and update ANBP's strategic plan to today's circumstances and needs. The planning process was **SWOT** (Strengths, Weaknesses, Opportunities and Threats.) Twenty people participated in a free-wheeling and interactive meeting over 2 days. For the 4 categories, ACTION PLANS and assigned responsibilities were agreed on. They are:

Board

- Review the election / appointment process
- Review Vision Statements and Tag Lines
- Each committee chair to recruit a new committee member from the general membership
- Explore and bring a proposal to the AGM October, '2007 regarding branding of ANBP members products. (*3rd party certification of the products?*) Review Marketing and Public Relations Committee specific assignments and timeline
- Review fundraising needs focused on particular needs as they arise.

Legal

Marketing

Research

Executive Director

- Shortlist of eventual Exec Director replacement and search protocol
- Review Board member job descriptions expectations to include position expectations

Marketing and Public Relations Committee Define benefits of ANBP to
producers

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non-producers

- Add ANBP benefits to Website via a link to "Benefits of Membership"
- Biocontrol success stories for website and journals
- Articles for website
- Assure funding for Marketing needs
- Update Poster
- Update Brochure
- For program chair of AGM Oct 2007 to put together a marketing session (*advertise as a feature of ANBP membership*). For Executive Director to be a PR rep for ANBP or for Ex Dir to identify PR rep for ANBP to do trade journals articles, press releases; and direct mail campaign

Membership Committee

- Cooperate /contribute with industry organizations (+ tap AIEE; CBS; CAPCA; International IPM)
- Cultivate academic interest round tables cultivate new active (some young) committee members
- Bring a new member and get them ACTIVE
- Each committee chair to recruit a new committee member from the general membership Recruit active participation from Mexico.

Regulatory Committee

- Specify policy of freight carriers and airlines for carrying living insects. Contact Bob Flanders (PPQ) to establish two way communication re regulations which affect ANBP members

Continue positive influence on regulatory policy

Participation in open panels:

- NAPPO - minimum of one member will need to participate
- USDA / APHIS - CFIA - Mexico - President needs to attend
- USDA / ARS stakeholders meeting (every 5 years)

Research Committee

- Research Committee Chair to coordinate regular meetings between ANBP members and key people who

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steer research (ARS; AAFS). The ANBP research committee chair to devise agenda (focusing on multiple small interest groups.) Contact Don Nordland at USDA OTT regarding the feasibility of a group CRADA

- For Canada, Sinthya Penn to report to ANBP regarding the feasibility of a trade agreement with AAFC (meeting scheduled for Oct. 26, 2006)
- Request the ANBP Board to explore and to bring a proposal to the AGM Oct'2007 regarding branding of ANBP members products. (*3rd party certification of the products?*)

Website Committee - Ideas to present to contractor Willis Design

- For Website Chair : develop pest search engine w/ Willis Design on website; Norm Leppla has a student who is interested in helping as well.
- Capture and Maintain the Knowledge base
 - Set up "Intranet" (password protected) for articles, presentations Bulletin board
 - Post conference presentations
 - Enhance the website
 - Searchable database of member products in combination with markets served and company profiles.
 - Add Producer profiles
 - Add a summary of ANBP accomplishments
 - Links to member profiles and markets served

Sustainable Agriculture:

*The Billings Ranches of Delano, California is a large vertically integrated almond farming, processing and marketing organization, spanning four generations. It is also the parent of ANBP member **Sterling Insectary** (kim Gallagher is a member of the ANBP Board of Directors.) The California Almond Board's newsletter "Almond Environmental News" featured the following story.*

Almond Grower Looks Long-Term with His Orchard Growing Practices

By Marni Katz, Special to California Almonds

Matt Billings, a fourth-generation almond farmer based in Delano, Calif., takes a long view of his vertical almond operation. The father of two young children, Billings said sustainable farming will help ensure the health and production of his land and orchard for future generations.

"For us, the goal is to not use such heavy inputs that you ruin the soil, tree or orchard for short-term gains," he said. "Especially with a permanent crop. If you have an orchard in the ground, you are committed for 25 to 30 years, so you have sustainability built in from the beginning."

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The key to successful sustainable farming, he said, is more footwork in the orchard, carefully monitoring pest and disease pressures and staying on top of irrigation and nutrient status on a block-by-block—and even tree-by-tree—basis. Billings never sprays on the calendar, and makes decisions about irrigation, fertility and other inputs with consideration for variety, soil type, petiole samples, trap counts, yield potential and orchard conditions.

“In order to be successful, you have to actually manage it on a daily basis,” he said.

Billings Ranches has 5 percent of its Kern and Tulare county almond acreage in organic production and another 5 percent in transition.

The key difference with organic versus sustainable farming production, he said, is that organic orchards typically yield less on average and are in production 5 to 10 years shorter than conventional orchards, largely due to the lack of fungicide available to fight diseases.

Sustainability in the Orchard

Through sustainable farming, Billings is incorporating many of the same environmentally friendly techniques of organic production throughout his entire acreage, while sustaining the production and health of his orchard over a longer time.

These practices include scouting and trapping for insects, monitoring weather and orchard microclimate conditions and spraying only on necessity for pests and diseases. Fungicides are applied based on information collected from weather stations within the orchards, in addition to historical information, variety susceptibility and other factors.

Drip irrigation allows Billings to more efficiently fertilize through the irrigation system and also reduce or eliminate potential runoff. Dual drip lines down the orchard middles irrigate trees without encouraging the growth of weeds on the berms, reducing the use of synthetic herbicides. Mowing over the top of the drip lines helps manage weeds that develop during the season. Prior to harvest, drip lines are moved from the middles and tied on top of the berms out of the way of the sweeper and pickup machines.

Good orchard sanitation to reduce mummies to two or less per tree is critical for managing overwintering navel orangeworm. Mummies are shaken off after harvest, and stick-tights are later removed by poling when necessary. Dormant oil sprays manage overwintering scale and are applied as needed based on scouting and monitoring results.

Billings Ranches has reduced mite sprays through the release of beneficial insects. At its Sterling Insectary



Entomologist Kim Gallagher, left, shows almond grower Matt Billings the beneficial mites being reared on soybean plants at Billings Ranches' Sterling Insectary in McFarland.

Photo Credit: Marni Katz

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in McFarland, Billings raises millions of tiny western predatory mites and *stethorus* beetles on soybean plants, which are bundled and released several times a year throughout Billings' almonds. The insectary also sells the beneficials to outside growers.

Most of his outside customers are winegrape growers. Billings said winegrape growers have more successfully capitalized on such sustainable farming practices with their labeled end product.

Marketing Sustainability

"Winegrape growers are closer to the customer; they can differentiate themselves [for sustainable farming practices] better with a bottle of wine than we can with a pound of almonds," he said. "They can put their name on a bottle of cabernet and tout these practices directly to their consumer in the tasting room."

Still, he said, there is market potential for sustainable almond farming, particularly as the message reaches consumers who already connect almonds with healthy living. And California's place as the dominant supplier of the world's almonds puts the state's growers in a unique position to establish a sustainable standard and identity.

Billings said the future of sustainable almond farming will rely on new harvest techniques and varieties that can move orchards to a single harvest and are more resistant to traditional insects and diseases that plague almonds.

"A big part of sustainability of the future is new variety development," he said. "Almonds would be very easy to grow with very little pesticide inputs if we had the right varieties."

Pollination is another factor, and Billings envisions alternatives that will help reduce the dependence on honeybees for sustainable pollination. Honeybees currently account for 20 to 25 percent of his total production costs and Billings said honeybee pollination carries with it secondary problems such as fire ant.

Already, Billings is exploring the possible use of blue orchard bees for sustainable pollination. These native blue orchard bees are vigorous pollinators that live in nests rather than rented hives within the orchard. Farmers can rear and release the non-aggressive bees themselves rather than rely on outside pollinators.

"We've looked at it a little bit. It's got potential. I don't know if it's the answer to completely eliminating honeybees but I see it as another pollination tool," he said.

And Billings said new harvest techniques, such as catch frame harvesting or other methods that keep harvested almonds off the orchard floor, need to be explored by the industry as part of a sustainable system. These techniques, if they are workable, could eliminate the use of inputs to maintain a clean orchard floor and also reduce dust emissions from harvesting, something he noted almond farmers are already addressing.

If it all sounds like a lot of work, Billings said it's worth it in the short and long run to adopt sustainable farming systems.

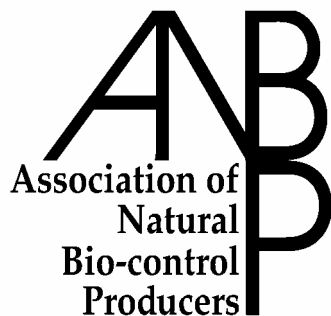
"I get to see my kids and future grandkids be successful doing the same thing my family has done for four generations and I think that's a commonly shared goal and philosophy among many almond farmers," Billings said.

Upcoming Meetings, Workshops and Events

(Revised December 09, 2006)

Don't forget to visit www.anbp.org/events for direct links

Date	Title	Location	Contact info
Jan 18-20, 2007	TPIE (Tropical Plant International Exposition)	Ft. Lauderdale, FL	www.fngla.org/tpie
Feb 4-6, 2007	AAIE Ecological Pest Management Conference	Napa, CA	www.aaie.com
Feb 6, 2007	ASTM Workshop	Napa, CA	www.astm.org
Feb 7, 2007	ANBP Spring Board Meeting	Napa, CA	www.anbp.org
Oct 21-25, 2007 (tentative)	Joint Meeting IOBC/AMRQC and ANBP Conference and AGM	Montreal, Canada	www.anbp.org
Dec 9-13, 2007	ESA Annual Meeting	San Diego, CA	www.entsoc.org
Feb 8-13 2009	3 rd Int'l Symposium on Biological Control of Arthropods (ISBCA)	Christchurch, New Zealand	www.isbca09.com



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Bio-control Matters