



Insight

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Food Safety Rules Discussed at SAC Meeting

Stephanie Page, an official with the Oregon Department of Agriculture, told participants at the Scientific Affairs Committee (SAC) meeting in Portland in September that the new federal food safety rules require mint stills to register with the Food and Drug Administration (FDA) and follow certain food safety requirements.

The new rules are in place because of the federal Food Safety Modernization Act, passed by the United States Congress in 2011. The goal of the new law is to take a more proactive, preventive approach to food safety, said Page, who is director of Food Safety & Animal Health at the state agriculture department.

To implement the new act, the Food and Drug Administration developed draft rules and spent months visiting with stakeholders around the U.S. and beyond, Page said. "Oregon Department of Agriculture, the Oregon Mint Commission and many other stakeholders submitted comments and engaged with FDA."

Page told the SAC meeting participants that the

FDA clarified how mint stills would be effected during a December 2015 public meeting. "Mint stills are exempt from part of the final rule, but they have to meet good manufacturing practices requirements," she explained.

The good manufacturing requirements include provisions related to employee training, personnel health and hygiene, equipment in a cleanable and clean condition, safe water supply and plumbing system and safe storage and warehousing. Meeting participants asked several technical questions of ODA food safety staff at the meeting and Page recommended that still operators reach out to their respective state's food manufacturing/processing inspection program for technical assistance.

"What should growers do? Register with the FDA as a food facility," Page said. "Consider getting a license with your state food safety program or reaching out to them for technical assistance, and, if possible, find and take a training on good manufacturing practice requirements from your local Extension food science program."

The full presentation, along with a sample food safety plan, instructions on how to register as a food facility, state food safety officials' contact information and several other resources, are available on the Mint Industry Research Council's website, www.usmintindustry.com.

Bryan Ostlund, administrator of MIRC, mentioned at the meeting that the MIRC has posted on its website FSMA sample documents, including protocols producers can follow to meet the law's requirement of developing best-management practices.

Page added that depending on the state, producers may need to register stills with both the state and the federal government. There is no charge to register stills with the FDA, but there may be charges on a state level, Page said.

Operators of on-farm stills can register with the FDA at: www.fda.gov/Food/GuidanceRegulation/FoodFacilityRegistration/ucm2006831.htm ♦

D.C. Trip ‘Very Productive’

In an effort to get ahead of the federal budget process, the Mint Industry Research Council’s Bryan Ostlund and Steve Salisbury traveled to Washington, D.C., in July this year, rather than waiting until early March, their normal timing.

“It made sense to switch, so we are at the front end of the budget discussion,” Ostlund said.

The timing appeared to be excellent, given that one of their key meetings during the trip was with Oregon Senator Jeff Merkley, who went directly from meeting with Salisbury and Ostlund to a Senate Agriculture Appropriations Subcommittee meeting.

“Merkley literally left our meeting to go to a committee meeting to start mark up on the new spending bill,” Ostlund said. Merkley is the top Democrat on the subcommittee.

While in D.C., Ostlund and Salisbury also met with officials from the USDA Office of Pest Management Policy, the EPA and the National Institute of Food and Agriculture (NIFA), which administers IR-4 funding.

Ostlund said NIFA is changing its budgeting process. Rather than asking lawmakers for specific budget line items for its multiple programs, it is lumping its requests into what it is calling the “tactical sciences.” IR-4, which helps register pesticides for minor crop uses, is now a part of that overarching umbrella, he said.

The change represents a challenge, Ostlund said. In addition to lobbying Congress for tactical sciences funding, he and Salisbury now are working to ensure IR-4 gets its slice of the “tactical sciences” funding from NIFA.

“The strategy from the IR-4 Commodity Liaison Committee is to make sure we are sitting at the table of NIFA and carrying what they are trying to push through Congress, and to work with NIFA to get our fair share,” Salisbury said.

Salisbury characterized the new NIFA strategy as good and bad. “The positive is when we

go to the Hill, we hear that it is good that we are joining forces to have a collaborative approach. At the same time, we have to make sure that we engage NIFA directors and say, ‘Hey, don’t forget us when the pay raise comes. Don’t forget who was doing the work on the Hill,’” Salisbury said.

Complicating efforts to generate Congressional and agency support for IR-4 is the program’s low-key success rate. While IR-4 does a great deal for the country’s food supply, it does so quietly and efficiently behind the scenes, Salisbury said, making it difficult for the program to attract the kind of dollars big ticket items like avian influenza or other well-publicized food safety issues can attract.

As evidence, Salisbury noted that IR-4 has been flat-funded for seven years running and is facing a \$7.1 million shortfall this budget.

In meeting with officials from the Office of Pest Management Policy, Ostlund and Salisbury said they came out with several positives, including that the office appears to be carrying more clout under the new administration.

“The office was really muzzled under the last administration,” Ostlund said. “They were put on ice. Now it is a brand new day. They are energized and ready to go, so our timing to be in there was perfect, because they want to help.”

The relatively obscure office was created in 1997 to provide a voice for agriculture in the pesticide registration process as a counterbalance to the EPA directive, Salisbury said.

“The EPA’s job is to do hazard risk assessment on whatever pesticide is on the table,” Salisbury said. “Their job is to analyze how and if that pesticide is going to harm humans and the environment. They are also supposed to take into account the benefits assessment, which the Office of Pest Management Policy is supposed to provide for growers, speaking

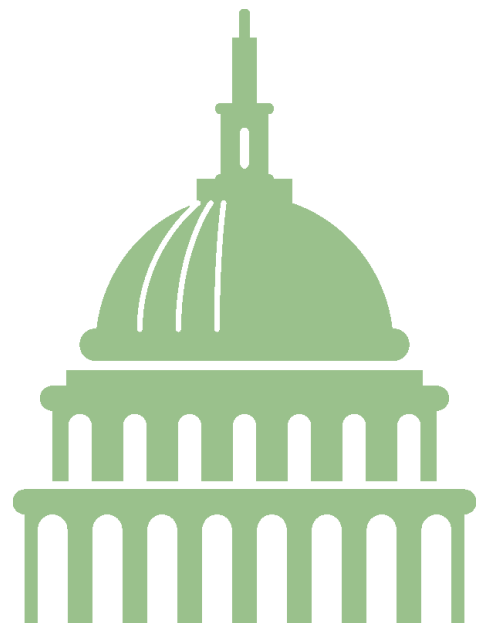
on behalf of the Secretary of Agriculture. But that has largely gone by the wayside in recent years.

“That is why that office is so critical for us to engage with,” Salisbury said.

Finally, Ostlund and Salisbury met with EPA officials in an effort to maintain what has been a strong relationship with the former head of the agency’s minor-crop pesticide division, Barbara Madden, who retired August 31. Salisbury and Ostlund said they are hopeful Madden’s apparent replacement, Dan Rosenblatt, will continue to provide strong support to the mint industry’s efforts to obtain minor crop pesticide registrations.

In general, Ostlund and Salisbury characterized the trip as “very productive.”

Ostlund added that the MIRC Board of Directors should be complimented for supporting the trips to D.C. “They get the importance of these trips,” Ostlund said. “It is all tied together with Steve’s efforts with IR-4 and the food-use workshops he attends. It all knits together and it is something that should never end. You’ve got to maintain that discipline to be there year in and year out or you are forgotten.” ♦



With Retirements, a Changing Arena of Mint Research

With several prominent mint researchers nearing retirement or recently retired, the question arose at a recent MIRC Scientific Affairs Committee meeting as to whether the future of mint research is in peril.

The short answer, according to researchers, is no; not with continued support from the industry for university and USDA Agricultural Research Service projects. But it could face fits and starts, at least for the short term, as work transitions from the older researchers to new ones.

In weed science, for example, three of the nation's top mint researchers – Steve Weller from Indiana, Rick Boydston from Washington and Carol Mallory-Smith from Oregon – are recently retired or planning to retire next year. To date, only the Oregon position is expected to be filled and there are questions as to when that will occur, given recent budget issues at Oregon State University.

Mallory-Smith, whose half-time contract expires in June, said she has seen a steady erosion of mint researchers at OSU over the past twenty-plus years. “When I came here, in 1994, we had an entomologist that spent a lot of time in mint. We had two pathologists that spent a lot of time in mint. There was work done in nutrition in mint. And we had a nematologist who worked in mint.”



Carol Mallory-Smith, in her office at Oregon State University, is one of three prominent weed scientists with extensive experience in mint who have recently retired or are in their final year.

Today, mint research in Oregon is devoid of a nematologist. Instead of two pathologists, one, Jeremiah Dung, is working in mint. OSU's new soil scientist Amber Moore to date has no immediate plans to work on mint research, meaning there are no soil scientists working in mint right now. And, instead of two weed scientists, today only OSU Extension Weed Management Specialist Andy Hulting is working in mint.

“It seems like if we had two positions before, now we have one,” Mallory-Smith said. “And in Oregon, it may be less problematic than maybe in some other states, because we do still have a weed scientist working in it. When we look at Rick Boydston's retirement out of Prosser (Washington), there are big questions about whether somebody will pick up that mint research. Idaho doesn't have a weed scientist working in mint. And I think there are questions about what is going to happen with Steve Weller's retirement at Purdue.

“There are probably a lot of holes, just in weed science, where people have no idea if they are going to be filled,” Mallory-Smith said.

Boydston, who plans to retire in April of 2018, said that the USDA Agricultural Research Service has notified him that it doesn't plan to replace him with a weed scientist. “They haven't said what they are going to do yet,” Boydston said, “but they have said it won't be a weed scientist here (in Prosser).”

Boydston, who worked on weed control in mint for more than 30 years, said a Washington State University weed scientist based in Wenatchee, Lynn Sosnoskie, has indicated she is interested in working in mint. Still, he acknowledged it will be difficult for a researcher to jump right in and provide research helpful to the industry.



Rick Boydston, WSU

“We are never going to replace what we are losing, but there will be new opportunities that will present themselves, and we will be there to capitalize on those opportunities.”

*Bryan Ostlund,
MIRC Administrator*

“I probably took four or five years to become comfortable working in mint and to get to the point where I felt like I had some knowledge that could help growers,” Boydston said. “You are kind of learning the first few years.”

Boydston also noted that he was able to pick the brain of weed scientists who had experience in mint when he came on board, a luxury that the next wave of weed scientists may not have.

Resources to Tap

Still, he said, there are resources new scientists can tap. “There are always the old reports,” he said. “I've always gone to my predecessors' reports when working with older chemistries that they may have tested in mint. And we do have a mint library. And people who retired are still available to call. I will certainly be around and will talk with people if they call.”

Boydston identified herbicide resistant weeds and a lack of new chemistry in the pipeline as immediate challenges facing the industry in weed management.

Purdue's Weller mentioned the same challenges, specifically herbicide resistant amaranth species, such as redroot pigweed, tall waterhemp and palmer pigweed.

“The tall waterhemp and palmer amaranth that have come into the Midwest recently are

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Steve Weller,
Purdue University

resistant to a lot of different herbicides,” Weller said. “And they grow much faster than the redroot pigweed, so they are a big problem.”

As to who is going to work on them, Weller said

he didn’t know. Efforts on his part to convince Purdue University College of Agriculture administrators of the importance of replacing him with another weed scientist apparently have not yielded results.

Weller, who retired June 30 of this year after 37 years at Purdue, wrote a job description and talked with the Horticulture and Landscape Architecture Department Head Hazel Wetzstein about filling the position, but said, “I don’t think there will be any replacement for two years, if there is one even then.

“I tried to make a good case about the fact that weed management is important for all of the horticultural industries, especially the Mint Industry Research Council, which we have worked extensively with over the years,” Weller said.

“I guess time will tell (if his position is refilled), but I know it won’t be immediate,” he said.

Keeping mint a focus of research, Mallory-Smith said, likely will come down to the industry’s commitment to back research. To date, she said, the industry has shown it is willing to do so.

The industry also in 2014 brought on Steve Salisbury as the MIRC Research and Regulatory Coordinator, a fact that also bodes well for the future of mint research.

“We are never going to replace what we are losing,” said Bryan Ostlund, administrator of the MIRC. “But there will be new opportunities that will present themselves, and we will be there to capitalize on those opportunities. The MIRC is well positioned to continue to build a network for the future.” ♦

New Orleans Site of 2018 Meeting

The Mint Industry Research Council’s 41st Annual Meeting will be held January 24-25 in New Orleans at the Renaissance New Orleans Arts Warehouse District Hotel, 700 Tchoupitoulas Street, New Orleans, Louisiana.

The open session begins Wednesday, January 24, at 2 p.m. and concludes at 5:00 p.m. Thursday’s program kicks off at 8:30 a.m. with a Council Update and the Chairman’s Report. It concludes at 4:30 p.m. and will be followed by an industry reception that evening.

For Reservations, call 877-622-3056. When calling, inform the hotel you are with the Mint Industry Research Council to receive the special room rate of \$159 (plus taxes and fees) single or double occupancy.

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Irrigation Study Could Assist in Cost-Benefit Analysis

Troy Peters, Extension Irrigation Specialist for Washington State University, has floated a proposal to the Mint Industry Research Council to fund research that could help growers decide whether to switch to low elevation precision application irrigation, or LEPA.

The research also could help position the mint industry as conservation minded.

“One of the things I hope that this gets used for is to show the general public that, ‘Hey, we care about the environment. We are trying to conserve water. Look at the programs we are doing,’” Peters said.

On a more fundamental level, the research could provide growers with hard numbers that show the value of the technology versus the cost of implementation.

To date, studies suggest the switch from traditional irrigation technology to LEPA and LESA (low elevation sprinkler application), could provide small savings in power costs and result in higher yields.

“What we’ve found is we can increase the overall yields by using LEPA, which is dribbling the water on the ground through the pivot instead of spraying it on,” Peters said. “We think it is about five to ten percent more oil yield off of about the same amount of hay.”

Peters said researchers have studied the yield responses in spearmint only, to date, but are hoping to also look at peppermint in future experiments.

“That is one of the things we want to do,” he said. “We want to expand the research to look at it with peppermint and do it on a much larger scale.”

The project involves utilizing both LESA and LEPA by turning over the sprinkler’s spray plate and alternating the technologies.

“It is a very simple configuration using existing sprinkler heads,” Peters said. “A lot of people have done LEPA with mint, but it involves a complicated process that includes hanging additional manifolds off of the pivot. What we are proposing to do is to turn all those spray heads upside down on the pivot.



LEPA being used on mint published in *Hay and Forage Grower*.

“You wouldn’t even need ladders, because it is really close to the ground,” he said. “All you have to do is turn that spray plate upside down to a different spray plate and you can have LEPA.”

In both LESA and LEPA, water savings can be significant, Peters said. Preliminary experiments show that converting a pivot to LESA, for example, enables an applicator to get 15 to 20 percent more water to the ground per gallon pumped, he said.

“It is pretty simple,” he said. “There is just much less opportunity for wind drift and evaporation to lose water.”

Peters added that on a windy day, it is easy to see how traditional irrigation systems lose water through wind drift and evaporation. “On these LESA and LEPA sprinklers, the water is just going to the ground.”

In addition to potential yield increases, other benefits could be available when switching to the LESA-LEPA system, Peters said.

“If somebody doesn’t have enough water, and they have been shorting their crop because of a lack of water availability, now, with the same amount of water, they can get 15 to 20 percent more water to the ground and into the

soil. That can make a huge difference to their bottom line.

“For example, if you have four pivots of mint and you can cut your water use back by 20 percent, you could probably plant another pivot of something else, where, otherwise, you wouldn’t have the water for it,” he said.

Peters said the technology won’t work in all cases, particularly on steep slopes where water loss to runoff can occur.

“Because you are putting the same amount of water on in less time, there is a greater propensity for ponding and runoff,” Peters said. “So if growers are already having a problem with water runoff and ponding with their irrigation system, this is probably going to make that worse. You would have to either speed up the pivot or do some sort of alternative tillage or maybe it just isn’t going to work for them.”

Peters said he already has a grower-cooperator lined up and a research assistant ready to get started on the project. “We are now just waiting to see what happens,” he said.

Preliminary data gathered to date comes from projects funded by the Washington Mint Commission. ♦

SAC Meeting and Tour Draws Compliments

Participants in the MIRC's Scientific Affairs Committee's (SAC) tour and meeting, September 13 and 14 in Corvallis and Portland, Oregon, said they were fascinated to get a behind-the-scenes look at varietal improvement research on mint being conducted at Oregon State University.

In the tour, held September 13 on the Oregon State University campus, Kelly Vining, an assistant professor in the Horticulture Department of the College of Agricultural Sciences, showed participants her lab and greenhouse space and introduced participants to the Center for Genome Research and Biocomputing.

Eric Dowd, Senior Manager Oral Health and Flavor Science at Wm. Wrigley Jr. Co., characterized the tour as "just great."

"It brought to life – beyond seeing the presentations of the research in the meetings – the great team and all of the hard work and passion that is going into the project," Dowd said.

"In addition to that, it was great to be able to see the real tangible results that are coming out of this: Being able to see the plants that are being created; the crosses being created; that there is a lot of value that is already beginning to come out of the program," he said.

"I think it was kind of an eye-opening experience for people who aren't normally exposed to that type of work," said Adam Schmidt, Technical

Deputy Director of Research and Technology at Callisons, who holds a Ph.D. in plant biochemistry from the University of Michigan. "It was a nice introduction to all the computing that goes into understanding the genome sequence. And we got to see what the greenhouse space looks like and we had a chance to actually see some of the plants, rub the leaves and smell the different odors from the oil.

"I think it was a great tour," he said.

Vining said several tour participants approached her and complimented her on the tour.

"I thought everyone was very enthusiastic and they asked a lot of really good questions about the breeding program and about the work we are doing, in general, to identify wilt resistance in mint," she said.

"(Tour participants) got to see that OSU has a state of the art DNA sequencing facility, got to see the machines and the facility on which the mint genome was sequenced," Vining said. The Center for Genome Research and Biocomputing includes a \$750,000 DNA sequencing machine. "And they were able to see the USDA plant accessions for mint and to see my breeding populations in the greenhouse portion of the tour."



Participants tour a state-of-the-art mint still operation on Venell Farms in Corvallis.

Participants also toured a state-of-the-art mint still operation on Venell Farms in Corvallis and were treated to a dinner there before heading back to Portland.

Participants said that in addition to finding the tour fascinating, they found multiple benefits in connecting with others during the two-day SAC event.

"I think that the connections that we make within the mint research community are really important," Dowd said. "This is not a huge industry and I think that we all need to connect and drive these relationships as much as we can. And without these meetings, we wouldn't be doing that."



"I see a significant benefit in being able to connect with people that are working in and interested in other aspects of the mint industry than what I am working in," Schmidt said. "For example, in interacting with the farmers, I gain a lot of perspective and I am able to see issues kind of the way that they are viewing

them. Likewise, interacting with the end users allows me to see issues the way it is going to be affecting them.

"Those social interactions are really beneficial for me to learn more about what is going on in the industry," Schmidt said.

"I am always going to participate as much as I can (in MIRC meetings)," he added. "I think that the MIRC is really doing a great service for the whole industry."

Asked if he planned to continue participating in SAC meetings, Dowd said, "Absolutely." ♦

Chairman's Report

Jason Stromme

I am pleased to personally welcome Essex Laboratories as the newest member to the MIRC. As many of you already know, Essex leadership was instrumental in laying the original foundation for the MIRC and we all will certainly benefit from having their extensive knowledge base and input as we continue to navigate through the various challenges we face as an industry.

Additional prospective new membership interest continues to be prevalent and I look forward to providing additional updates in January at our annual meeting.

Hard to believe that it is already November and yet another United States peppermint and spearmint crop is in the drum. By most accounts, it seems to have been a relatively uneventful growing season with the exception of what seemed to be a never-ending cloud of wildfire smoke that lingered above the Northwest for the better part of a month. As a result, we are seeing some slight differences in the typical composition of the peppermint produced in the Northwest, such as lower menthofuran levels. Interestingly, the smoke cloud may have played a role in limiting the sun exposure to the peppermint whilst in turn limiting the bloom.

On the MIRC front, the SAC Committee recently convened in Portland, Oregon, for their annual meeting:

1. Mint Varietal Improvement research continues to progress with Kelly Vining and Mark Lange furthering their work toward determining genetic variants associated with favorable oil characteristics and *Verticillium* wilt resistance in mint; validating candidate markers for *Verticillium* wilt resistance and oil quality/quantity; and performing crosses between horse mint and apple mint, and evaluating progeny for oil characteristics and *Verticillium* wilt resistance. Stay tuned for additional updates expected during our annual meeting in January.
2. IPM/Disease Management research continues with the very important role of determining the selectivity and efficacy of new herbicides in mint and developing effective management programs for emerging weed problems. Of course, *Verticillium* wilt continues to be one of our industry's most finicky pests! Ongoing work being done by Jeremiah Dung and Dennis Johnson continues to make great strides in developing economically feasible and environmentally sustainable management practices to control *Verticillium* wilt in mint. Such work is focused on developing a q-PCR method to detect and quantify *V. dahliae* and the VCG 2B strain of the pathogen in soil. This tool will help growers make management decisions based on wilt risk before planting mint.

3. Considered one of the more heated topics within our industry at present is the Food Safety Modernization Act requiring mint stills be registered with the FDA and



Jason Stromme

how the MIRC can assist in facilitating mint still registration. To learn more, I invite you to visit the MIRC website. A special thank you to Stephanie Page, Oregon Department of Agriculture, for providing the Committee with an update on the FSMA as it relates to producer level compliance.

Please allow me to take this opportunity to thank all committee members, researchers and the Board of Directors for their dedication and time put forth to ensure continued health and prosperity within our industry.

Lastly, I look forward to seeing you all in New Orleans January 24 and 25 for our annual meeting. As always, I welcome your questions, comments and thoughts and thank you again for your support of the MIRC.

Best wishes,

Jason Stromme,
MIRC Chairman



Tough Registration was Anything but Routine

For the first time in eleven years, mint growers in six states had access to Tough herbicide in 2017 through an emergency use registration, and, if all goes as expected, they will continue to have access to the product for years to come.

Key to obtaining the emergency use registration was a willingness on the part of Tough's manufacturer, Belchim Crop Protection, a Belgian company, to pursue its use in mint after the company acquired its marketing rights from Syngenta, which formerly manufactured Tough.

Shortly after that 2015 acquisition, Belchim contacted USDA Agricultural Research Service weed scientist Rick Boydston, and Boydston and Steve Salisbury, Research and Regulatory Coordinator for the Mint Industry Research Council, met with the company to talk about getting Tough registered in mint.

By the winter of 2016, with the help of weed researchers in the largest mint-producing states, the industry had submitted a request to six state departments of agriculture for a Section 18 emergency use exemption from the EPA for Tough, or pyridate.

"It was a pretty big task to gather all of the pertinent information and make the exemption request," Salisbury said. "All of the weed scientists participated and I really appreciated all of their help."

Salisbury added that the data, in many cases, was not very current. "Some of it came out of the late 1960s, early 1970s," he said.

Data accumulation also included acreage figures, which Salisbury gathered with the help of dealer-handler members of the MIRC. Section 18 requests also require a needs analysis, so Salisbury and weed scientists contacted growers and state mint commissions to gather information on the scope of the need for Tough.

"There were a lot of moving pieces," Salisbury said, "and it was a full industry effort to get it done."

Salisbury and others then waited until August of 2016 to hear back from the EPA, and what they heard was not encouraging.

"They essentially asked the states to withdraw the request," Salisbury said. "They did not feel the situation was deemed 'non-routine or urgent,' which are two key criteria in the making of an emergency exemption request."

As Salisbury puts it, the mint industry "obviously did not agree with that assessment."

On the plus side, he said, the EPA's response was not a denial.

"That meant we could revise our request and resubmit and address the issues that the EPA brought up and that is what we did," Salisbury said. "We generated more data, gathered more information. We also launched a research trial with Rick Boydston in the summer of 2016 that compared Tough treatments to currently registered post-emergent material, Basagran, Buctril and Sinbar, and that data showed a very clear picture of why we are asking for the exemption."

The trial showed that with Tough, researchers were able to control terbacil-resistant pigweed. With the currently registered herbicides, they could not.

"That data was a key piece of the pie," Salisbury said.

The industry resubmitted its request and in July of this year, EPA granted the exemption in Oregon, Washington, Idaho, Wisconsin, Indiana and Michigan.

"The downside was the timing was not good for the growers, because at that point, we were really pushing the envelope of being too late and, in many instances, the weeds were too big for optimum control," Salisbury said. "Still, we made the application and we were able to control smaller weeds, but we were unable to control the pigweeds that were a little too big. We didn't get the kind of control that we normally would have gotten out of Tough. But still, we made an impact on

controlling weeds in situations where there were no other options."

Salisbury said that in recent communication with Belchim, he learned that the Belgian company plans to seek a full Section 3 registration of Tough for all mint, both single and double cut. And, Salisbury said, the mint industry will resubmit its Section 18 requests to the six states, and possibly others, for the 2018 season, given that the full registration isn't expected until early 2019.

"For keeping your crop clean, turning out a quality oil, nothing compares to this product," Salisbury said. "It opens the door to improved quality production."

"Tough is very important in our area," said Boydston, who is based in Prosser, Washington. "It is one of the safest chemistries out there to put on post-emergence for broadleaf weed control in mint."

"It has really good crop safety, and for later season, for double cut mint, it is a really important tool for pigweed control," Boydston said. "We get a lot of pigweed germinating in that second flush of mint after the first harvest. We need a tool in there to take those later emerging broadleaf weeds out."

Boydston added, "It has been a struggle to get this product. Steve Salisbury has really gone to bat and done a lot of groundwork to get this back. But I think it is going to be a nice tool for the growers to have again." ♦



Research & Regulatory Update

Steve Salisbury

Chances were “one in a million” at resurrecting pyridate, **Tough** herbicide. On July 13, 2017, the stars must have aligned and the moon turned blue as my inbox began to fill with correspondence and authorization letters from the state departments of agriculture and the EPA approving our Section 18 request for pyridate.

Tough officially made a return despite being up against some steep odds. Yes, that was an exciting day for the mint industry as we regained access to the useful herbicide tool that had been shelved over a decade ago despite our industry’s plea for its return.

Of course, all good things are generally accompanied by challenges and this approval came with its set of challenges. I have been trying to keep track of the items that need addressed and revised for next year as we

move forward. The first and likely most significant challenge was the timing of the approval. Unfortunately, the timing of mid-July 2017 was out of our control and at the mercy of the approval process. Therefore, either many of our double-cut acres were beyond the window of opportunity for Tough application or the weeds were too big for optimum control. We are hopeful that as we go forward the approval will occur earlier in the year so that you can maximize the herbicide’s effectiveness. Efforts are already underway for next year’s (2018) request.

Related to the approval timing was the challenge of the 49-day pre-harvest interval (PHI). By the time product was available the calendar was looking awfully tight with regard to the label’s PHI. Just to clarify, harvest is defined as the day you cut the mint. This is defined by the EPA when

determining pesticide tolerance and PHI. In order to shorten this PHI, we would need to pursue another round of residue research (possible IR-4 priority) to gather the data and ask the EPA for approval. This is also something that can be addressed and certainly something worth discussing as an industry.

There were some concerns regarding the herbicide’s performance. However, it seemed that most of these comments were related to the fact that many weeds were just too big



Steve Salisbury

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at the time of application. This, of course, was a result of the approval timing. With regards to performance, we are confident in Tough's ability as we see good results in our research trials. On a positive note, crop safety remains very good on mint.

The MIRC multi-state weed research project focused their efforts on Tough in specific regional scenarios this year. Those results will be available soon and I'm certain you will see and hear presentation of those results at this year's winter meetings.

The MIRC multi-state weed research project focused their efforts on Tough in specific regional scenarios this year. Those results will be available soon and I'm certain you will see and hear presentation of those results at this year's winter meetings. Additionally, discussions are underway on expanding our pyridate performance research efforts to look at ways to maximize weed control with Tough, including conducting trials to evaluate tank mix combinations, timings, weed spectrum performance, adjuvants, etc. If you have an unanswered question regarding the application of Tough on mint, let me know so that it can be discussed with the weed scientists.

Other topics of concern I received from the field include product availability, cost per acre and the inclusion of additional states not in the 2017 request. As for availability and cost, these are out of the hands of the MIRC. That said, I'm confident that Engage Agro will do everything they can do to

support the mint industry and address both market and distribution concerns.

Those of you outside of the six states included in the 2017 request, we will attempt to include your states in the 2018 request. However, we will need some assistance from you in determining which states you would like to add and the acreage of production in that state and county. Feel free to drop me an email or phone call. I'm more than happy to make the attempt in getting your state added. My contact information can be found on the back of this newsletter.

Looking ahead, the registrant is working toward a full Section 3 registration which would cover all production in all states. This is ultimately what we all want. The EPA is not scheduled to complete its review and make a decision on this full registration until winter of 2019. Therefore, we will be pursuing another Section 18 registration for the 2018 crop.

An update on **Vydate**: The last report was that Vydate L for mint has been delayed and would not be made available until January or February of 2018. In the meantime, it is worth noting that there is a labeled generic product available. Return™ distributed by SipcamRotam® is a generic form of oxamyl. Check with your ag retailer on availability. There have been rumors of another generic label coming soon, but as of now there is not.

Back in September, I attended the 2017 IR-4 Food Use Workshop. I am happy to report that the mint industry was successful this year in gaining the 2018 research priority for residue studies on **Warrior** (lambda-cyhalothrin) insecticide. Thanks to research studies conducted by Dr. Doug Walsh at WSU, we were able to determine that Warrior fits well into mint's IPM

strategies for insect control. Warrior would offer an effective alternative to acephate and chlorpyrifos for caterpillar control of early-season cutworms and late-season armyworms. So, as a result, if all goes well we will get a registration for the use of Warrior on mint in a few years.

In the shorter term, **Zidua** (pyroxasulfone) herbicide was submitted to the EPA for approval and registration on mint. At last check, we are expecting an approval by March 2018. If this stays on time, you may have the opportunity to utilize this soil applied herbicide for the 2018 crop.

Lastly, I would like to report that Bryan Ostlund and I went back to Washington D.C. to provide support for the IR-4 Project on behalf of the MIRC. This included several meetings in Congressional offices as well as USDA-NIFA, the main funding agency of IR-4. Also, while in D.C. we arranged meetings with the EPA and the USDA-Office of Pest Management Policy. Both meetings were very successful in generating and maintaining positive relations with these agencies. These visits are key to maintaining open dialogue and gaining assistance and support into the future for the mint industry. Both of these agencies are key in pesticide registrations, and both played roles in our 2017 Section 18 request for Tough herbicide. We appreciate their support and understanding of our situation in the field. We will continue to maintain these positive relations.

I look forward to seeing you all at the winter meetings, and I plan on sharing a full report from the MIRC with you there. As always, I appreciate hearing your thoughts on MIRC research, pesticide topics and regulatory concerns. See you soon.



Annual Meeting Agenda 'A Great Lineup'

Participants in the MIRC's 2018 Annual Meeting will hear of the latest developments in efforts to breed a mint variety resistant to *Verticillium* wilt, learn how to get the most out of Tough herbicide and gain a better understanding of the requirements of the Food Safety Modernization Act (FSMA).

"I think it is a great lineup," said MIRC Research and Regulatory Coordinator Steve Salisbury, who helped put together the program.

The program kicks off with a presentation by Oregon State University Assistant Professor Kelly Vining, who said she has some encouraging news to share.

"It looks like we have some new, very exciting wilt-resistant candidates that we will need to follow up on," Vining said. "We started with a really broad net and we are narrowing that down further and further, and we have a handful of really strong candidates at this point."

Vining also will talk about work she is doing on identifying molecular markers linked to wilt resistance and oil quality. She will be followed by Mark Lange, an associate professor in the Institute of Biological Chemistry at Washington State University, and Jeremiah Dung, an assistant

professor at OSU in the Department of Botany and Plant Pathology.

David LeRay, a supervisory consumer safety officer with the Food and Drug Administration, will talk about the mint industry's requirements under the Food Safety Modernization Act.

"What I've asked David to talk about is to please shed a light and provide some clarity to the industry on what is required," Salisbury said, "because it is confusing."

"I am looking forward to hearing what the FDA gives us, and hopefully he can answer questions and clarify what it is we are supposed to be doing," Salisbury said.

Salisbury identified the presentation of Ed Ruckert, of the international law firm McDermott, Will and Emery, as a highlight of the early morning session on Thursday. Ruckert, lead counsel for the Minor Crop Farmer Alliance, an alliance of national and regional organizations that provides lobbying services for minor crops, "has a good handle on pesticide regulatory information," Salisbury said, "and is up to speed on the food safety issue."

"I think he can shed some light on what the new U.S. Administration means for agriculture and pesticide regulations, in general," Salisbury said. "And I think he will be able to speak to FSMA and maybe tie it together with what the FDA tells us and bring some summary to the whole issue."

USDA Agricultural Research Service weed scientist Rick Boydston will provide a highlight of the late-morning session in his presentation on a multi-regional Tough herbicide trial. Boydston served as the lead scientist of that trial and has experience working with Tough, or pyridate, dating back more than 20 years.

Thursday's early afternoon session includes three presentations focusing on water use, including a presentation from Vance Merolla of Colgate on the importance of water conservation to Colgate. Troy Peters, Extension Irrigation Specialist for Washington State University, will provide information on research he has conducted in mint on mid-elevation precision application irrigation, or MEPA, low-elevation precision application irrigation, or LEPA, and low-elevation sprinkler application, or LESA.

Peters will be followed by Dave Dixon, a farmer from Nampa, Idaho, who has invested in drip irrigation and could shed some light on the pluses and minuses of that technology. "I think he may be able to answer a lot of questions growers have about whether it works, doesn't work and what some of the real issues and challenges involved in it are," Salisbury said.

The final portion of the program includes presentations from Bryan Raudenbush from Wheeling Jesuit University on mint sensory research he's conducted into the positive effects of the fragrance of peppermint and spearmint and a presentation from Rick Boucard of Texarome, who will talk about the work his company has conducted into continuous flow distillation of essential oils.

"I think it is going to be a great program, and I'm looking forward to it," Salisbury said. ♦



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Research & Regulatory Coordinator

Steve Salisbury
PO Box 483, Sublimity, OR 97385
503-551-3747 • steve@pacificagresources.com

Administrators

Bryan Ostlund & Kari Puffer
M.I.R.C.
PO Box 4059
Salem, OR 97302
503-371-5936 • bryan@ostlund.com • kari@ostlund.com