

MUSHROOM NEWS



APRIL
2021

**BUSINESS
ISSUES & IMPACT**

FEATURE ARTICLES

**POSITIONING YOUR MUSHROOM
BUSINESS FOR MODERNIZATION**

— Mark Spurgeon

**THE RELATIONSHIP BETWEEN
MUSHROOM SCIARID FLIES,
CULTURAL TECHNIQUES,
AND GREEN MOLD DISEASE
INCIDENCE ON COMMERCIAL
MUSHROOM FARMS**

— Phillip S. Coles, Maria Mazin & Galina Nogin

**DO YOU REALLY NEED THE
WET PAPER TOWEL WHEN
COVERING SYZYGITES?**

— Katie Morrison & Bill Barber

**BRACING FOR IMPACT: HOW
ASSOCIATIONS KEEP FLYING
DURING A PANDEMIC**

— Lori Harrison

**SAFETY SECONDS: STARTING
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— Ben Sheets

**OBITUARY: JOHN A. ARRELL:
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Business Issue / APRIL 2021

LORI HARRISON | *Mushroom News*, Editor | American Mushroom Institute | lharrison@americanmushroom.org

A magazine issue that focuses on business issues and impacts in the mushroom industry casts a wide net—everything can impact a business, from the obvious financial issues to external impacts, employees, and more. And in this issue we attempt to cover it all.

We start with an article from Mark Spurgeon of Ascendant Partners on positioning your mushroom business for modernization, with survey results from the industry, stakeholder insights, and execution considerations.

Next, we have two articles that focus on external impacts. Phil Coles, Maria Mazin, and Galina Nogin provide a summarization article of a research paper on the relationship between mushroom sciarid flies and green mold on mushroom farms. The published research paper can be found on the AMI website in the members only section under Research & Data. And on page 16, Bill Barber and Katie Morrison of Giorgi Mushroom Company address the question if you really need to wet the paper towels covering *Syzygites*.

Over the past year, we've focused on how the pandemic has impacted the mushroom industry—rightly so. In *Bracing for Impact*, I take a look at the pandemic impacts

from a different perspective—how the changes in the past year have impacted American Mushroom Institute.

In her *Food for Thought*, Rachel Roberts addresses how the virus is the leading economic indicator and what that means for mushrooms.

If you're craving a sandwich, Mushroom Council suggests stopping by a Jersey Mikes for the new Portabella Mushroom and Swiss—the result of a partnership with the sandwich chain. Read all about it on page 22 and how you can help spread the word. And in *Safety Seconds*, Ben Sheets from Phillips Mushroom Farms updates an article on best practices on establishing a Safety Committee.

The industry lost colleague John A. Arrell, a long-time Needham Mushroom Farms employee. His obituary appears on page 25.

Finally, Mushrooms Canada has announced the rescheduled 26th NAMC dates—June 12–15, 2022, in Vancouver, Canada. Visit page 29 for details. Enjoy! 🍄

Lori



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About the Cover: Photo courtesy Shutterstock. Image shows workers at a Dutch-style mushroom farm.



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MUSHROOM IMPORT REPORT | DECEMBER 2020

Compiled from the Department of Commerce Trade Data Services / Washington, D.C.

IMPORT CLASSIFICATION	DEC 2020 KILOGRAMS	2020 YTD KILOGRAMS	DEC 2019 KILOGRAMS	2019 YTD KILOGRAMS
Fresh, <i>Agaricus</i>	6,323,208	71,838,588	6,190,150	65,404,714
Fresh, NESOI*	1,159,410	9,303,424	1,057,297	11,034,195
Total Classified by Fresh Weight	7,482,618	81,142,012	7,247,447	76,438,909
Whole < 225 g	65,466	831,760	72,515	645,129
Sliced < 225 g	692,729	5,744,029	321,981	4,983,968
NESOI* < 225 g	1,210,612	12,923,114	779,662	12,279,876
Whole > 225 g	366,058	4,799,455	296,008	3,501,404
Sliced > 225 g	281,568	4,333,671	548,230	5,198,508
NESOI* > 225 g	1,267,587	14,105,863	1,472,355	15,677,300
Total Classified by Container Weight				
< 225 g	1,968,807	19,498,903	1,174,158	16,734,815
> 225 g	1,915,213	23,238,989	2,316,593	24,377,212
Total by Container Weight:	3,884,020	42,737,892	3,490,751	42,286,185

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Positioning Your Mushroom Business for Modernization

MARK SPURGEON | Ascendant Partners

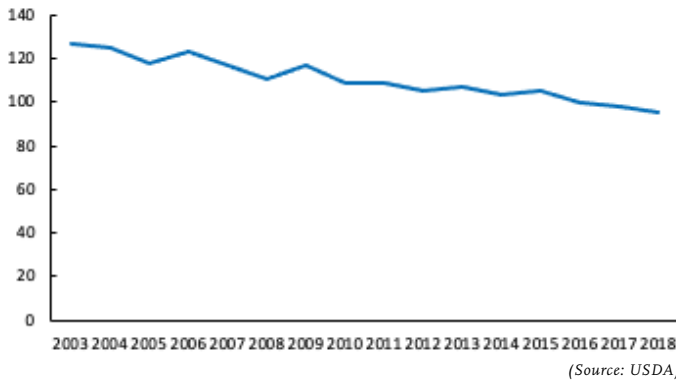
The mushroom industry continues to evolve at a quickening pace and mushroom growers who are best positioned to respond to these changes will enjoy continued success. Increasing consumer demand for mushrooms is one area where growers are responding. As a consumer product, mushrooms are well positioned to address the increasing consumer awareness for sustainability and nutrition. As a permanent crop that uses byproducts of other agricultural industries, mushrooms are an excellent crop for highlighting sustainability and the nutrition profile of mushrooms fits well with consumers growing attention to healthier foods.

As a result, some operators in the industry are looking at expanding and modernizing their farms. In addition, new

capital sources are entering the industry further driving expansion, modernization, and consolidation. While many growers may be looking to expand or modernize their farms, it's critical for companies to consider all aspects of an expansion or modernization plan to ensure successful financing and uninterrupted operations and sales. Before we get into the details, let's take a further look at some of the USDA statistics that help explain why the industry is experiencing these changes.

Overtime, the number of commercial *Agaricus* mushroom farms has declined. Since 2003, total U.S. *Agaricus* mushroom farms have declined 25% to 95 farms in 2018, the latest year for reported USDA data on mushroom operations.

Total US Agaricus Mushroom Operations



While significant, if we go back even further, in 1985, there were 514 farms in the U.S. Compared to 1985, the industry has experienced a decline of nearly 82% of operating farms. However, scale and efficiency have increased, as the average square feet per grower has increased five times over that period, from 252,140 square feet in 1985 to 1.26 million square feet in 2018. What these statistics illustrate is the increasing competitive nature of this consolidating industry—farms that continue to improve and modernize operations are best positioned to capture increasing consumer demand.

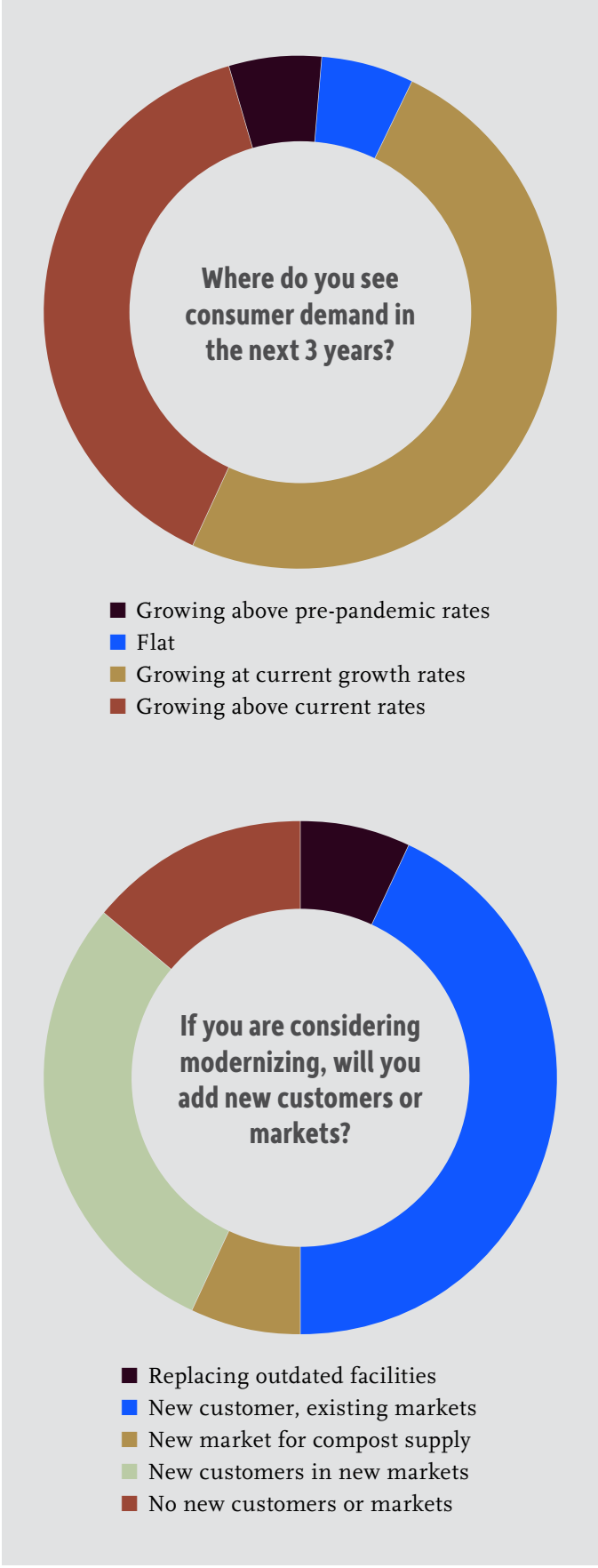
With demand expected to continue growing, mushroom operations will need to continue modernizing or in some cases expand to supply the market. According to Mushroom Council, demand is expected to grow six to 10 percent per year—at the current market size of approximately 800 million pounds—this equates to 50 to 80 million pounds of new demand each year.

AMI Survey Results

Recently, AMI surveyed members on their outlook for the industry. Nearly 90% of survey participants responded that they see the industry growing at or above growth rates experienced prior to COVID-19. With the expectation for growth, it’s no surprise that most in the industry are exploring modernizing or expanding their operations.

Stakeholder Insights

While most growers are looking to expand or modernize operations, it’s important to consider all aspects of what an undertaking of this size means. To help growers, Ascendant Partners has interviewed several industry stakeholders to provide insight for those considering such a project. In addition, Ascendant Partners’ experience with raising capital and selling businesses in the mushroom and



agribusiness industries provides additional perspective on the factors critical to successful project execution.

Summary Project Checklist

- ✓ Sales ✓ Staffing
- ✓ Site ✓ Technology
- ✓ Financing

One of the first steps when considering an expansion project is determining where your new volume is going to go. Whether you have existing customers asking for more volume or have identified new customers or markets, putting together a plan that includes timing and milestones will help you determine how quickly the new project will impact your overall operations.

Establishing contracts before the project will help de-risk the project and provide comfort to capital providers that the new volume will be sold. Amanda Dise, a Loan Officer with MidAtlantic Farm Credit, explains, “Having contracts for new volume provides assurance that the project will have immediate revenue; even better, putting together a contract

and sourcing third party volume prior to the new project helps further solidify the project from a sales standpoint.”

Staffing the new operations is also a key consideration. Management can be a challenge particularly for projects newly implementing Dutch-style operations. One industry source recently commented that having the right people to manage operations can be a challenge, particularly in the U.S. where there has been limited modern, or Dutch farm-style projects. In addition, growing and harvesting labor should be a consideration, especially for those developing a farm in an area with limited existing mushroom production where training and developing a labor pool may be necessary.

Site selection is a critical factor for long-term success. Determining if your existing site is suitable for the contemplated project not only includes the area available for expansion but also other considerations such as: Will there be new development of other businesses impacting how freely you can operate? Are there industries that could pull away labor; especially new labor as operations grow? A strong site plan will lay the foundation for a smooth development period and operations once construction is complete.

Technology is a fundamental determinant of the opera-

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tion's productivity but also impacts the construction timeline and costs. A strong technology partner will provide confidence in the project for the grower and other stakeholders, including capital providers. With compost such an integral part of growing success, selecting a strong technology provider that is aligned from the first phase of compost to packaging is a critical factor for success. Some U.S. growers have moved from tray to shelf farms as a way to alleviate current labor issues, in hopes that it positions the company to take advantage of future advances in automation.

As David Knudsen with Ostrom Mushroom Farms describes, "While automated harvesting is still being developed, the technology relies primarily on the aluminum shelves of modern operations. A modern farm will allow the company to quickly adopt automation technology when it becomes available." Another consideration for U.S. growers is the international nature of technology and equipment. This can present challenges for project timing but also additional costs that may not have been considered.

Finally, a successful project requires a financial plan that takes into consideration all critical project success factors. Carefully considering all aspects of a project will help give confidence to the project's lender and other capital partners that the project team has developed a thorough plan with built-in contingencies.

"Having a conservative timeline and buffer for cost overruns is important. We also appreciate when companies provide sensitivity scenarios to understand what happens if sales or production don't meet expectations," explains Dise.


In addition, a strong balance sheet that allows the company to fund shortfalls is a strong consideration from lenders. In our experience, a strong management team is also important. A credible management team provides confidence not only for the project development stage but also during the execution phase when hurdles will undoubtedly occur and need to be resolved. Finally, a clear communication strategy that demonstrates all phases of the project have been considered is important during the financing phase and throughout the construction and implementation phases. Clearly communicating issues will allow your financing partners to proactively work with you and project stakeholders to ensure a successful project.

It All Comes Down to Execution

The mushroom industry is primed for continued growth as the industry adopts new technologies and expands supply to meet increasing consumer demand. The companies that successfully adapt to these changes will be best positioned for the long term. To be successful, a thorough plan is needed


that considers all aspects of the project, communicates with project stakeholders, has an appropriate timeline, and capital cost buffer. With careful consideration to these factors, project execution will be second nature and growers will be well-situated for continued success. 🍄

Ascendant Partners, Inc. is a boutique investment banking and financial advisory firm exclusively serving businesses in the food and agribusiness space. For over 15 years, Ascendant Partners has worked with companies to position companies for raising capital or selling their business. More recently, Ascendant Partners has advised Ostrom Mushroom Farms on its capital raise for their farm in Sunnyside, Washington and Premier Mushrooms on their sale to Farmers Fresh.



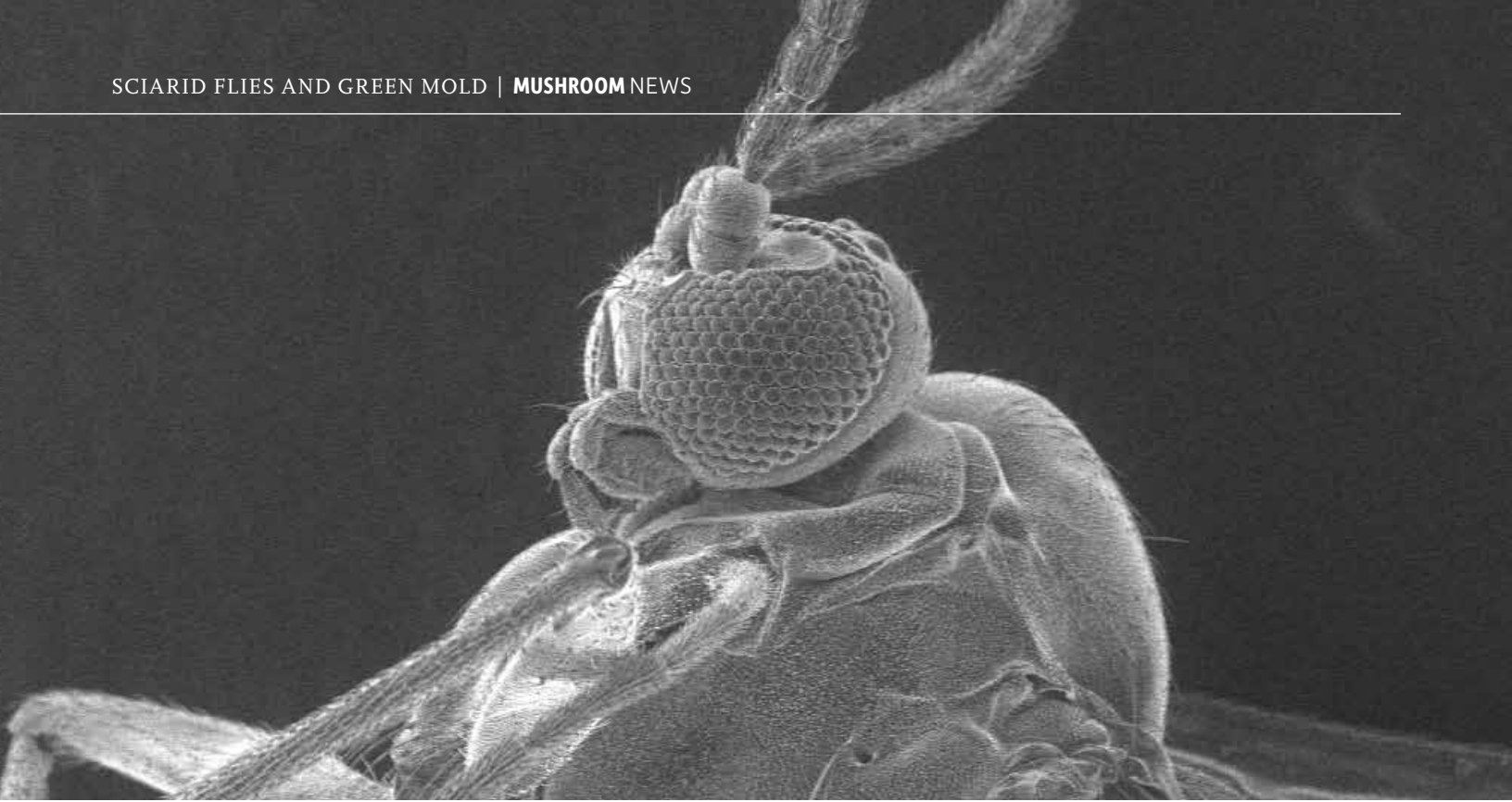
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The Relationship Between Mushroom Sciarid Flies, Cultural Techniques, and Green Mold Disease Incidence on Commercial Mushroom Farms

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MARIA MAZIN | BioBus **ALINA NOGIN** | Department of Statistical Science, Cornell University Corresponding author e-mail: psc208@lehigh.edu

Why do we have so much green mold? Why is green mold so much worse this year? Why is there less green mold this year? These are some of the difficult questions growers ask. Any grower can tell you that sanitization is important, that strains, cultural techniques, fly populations, are all going to affect the amount of green mold at their farm. You may have heard someone say, "Those are not my flies, those are my neighbor's flies," when referring to pest and disease outbreaks. All these things are contributing factors, but it's difficult to know where to focus pest control resources. Understanding the impact of these elements is important to developing an effective Integrated Pest Management (IPM) strategy and ensuring satisfactory pest control.

In our paper, recently published in the *Journal of Economic Entomology*, we attempt to increase our understanding of the drivers behind green mold infestations and their relative contribution to green mold outbreaks. We searched for associations between fly populations, various cultural

techniques and green mold incidence on commercial mushroom farms. This article is an overview of the findings from that paper, with additional interpretations, in an attempt to make it more useful for growers.

Green Mold Monitoring

Green mold was visually counted every third day or daily, depending on infestation level, within 458 growing rooms throughout the duration of the crop cycle. Daily counts were based on expression in 'squares.' In other words, a square that had any amount of green mold visible on the surface was counted. The number of infested squares was totaled for the entire growing cycle in each of the growing rooms.

Fly Monitoring

The Pennsylvania Mushroom Fly Monitor was used to collect fly data and counts were recorded from the same 458 rooms. We totaled the number of flies each day through the day of case to quantify invading sciarid fly populations.

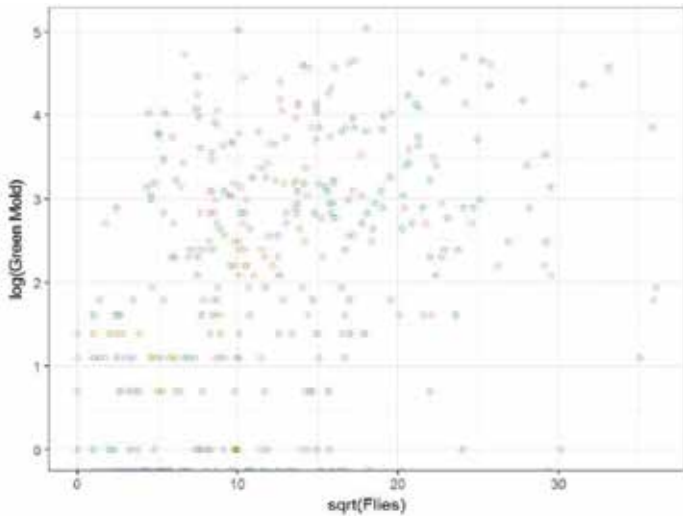


Figure 1: The association of number of flies and squares having green mold (Actual)

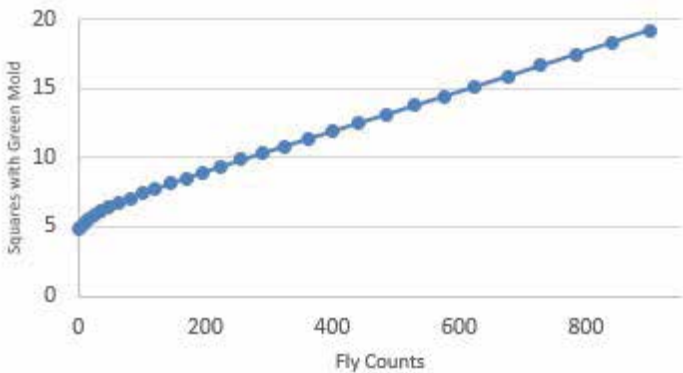


Figure 2: The association of number of flies and squares having green mold (Predicted)

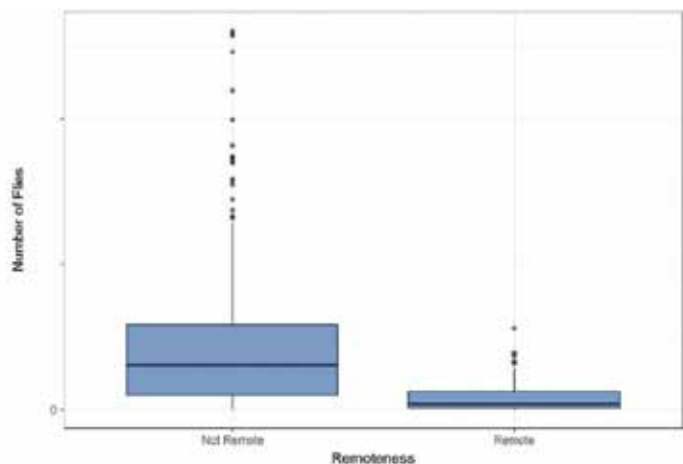


Figure 3: Number of flies by remoteness

Variables Affecting Green Mold Counts

The following variables affecting green mold incidence were considered: sciarid fly populations (expressed in total fly counts during spawn run), growing room filling techniques (categorized as Net fill vs. No Net fill), growing regime (organic vs. conventional), mushroom variety (brown strain vs. white strain), the day in the year the mushroom compost was spawned (a proxy for season and weather), and distance between farms (growing rooms within farms greater than one mile from another farm/building were categorized as remote, while those within farms less than one mile from another farm/building were categorized as in close-proximity). These variables were recorded for 458 rooms.

Variables Affecting sciarid fly Counts

The same variables mentioned above were considered for modeling sciarid fly counts. In addition, we included a variable called 'one roof,' which represents whether the growing room is within a building that has all different growing stages present, that is, all stages are distributed among the growing rooms (which share a common roof) in the building as well as rooms within buildings where similar growing stages are occurring in all rooms, also sharing the same roof. A common building (one roof) could increase fly and disease spread by allowing easier movement of flies and disease organisms between rooms because they would not be required to abandon the shelter of the building in order to do so. This variable was recorded for 458 rooms.

Results/Discussion

The Scatterplot in Figure 1 shows a relationship between the number of flies and the number of squares with green mold. Figure 2 shows the number of squares that would be predicted to have green mold based on ever greater fly counts—all other factors being equal.

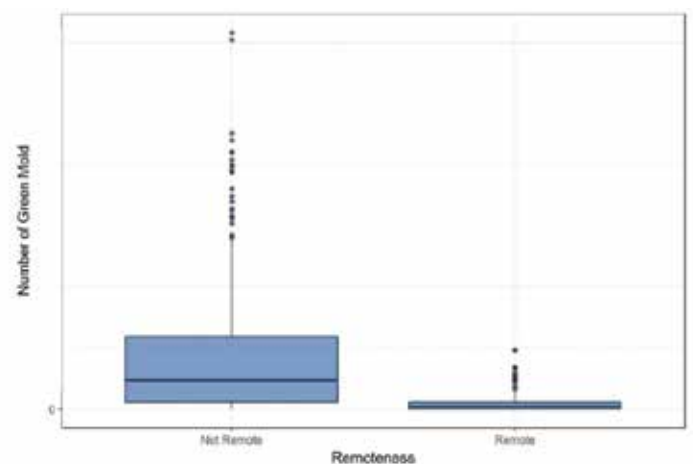


Figure 4: Number of squares with green mold associated with farm remoteness

From Figure 1, it is apparent that this is not a perfect relationship. If it were a perfect relationship, there would be a straight line running diagonally from the bottom left-hand corner to the upper right-hand corner, and every point would fall exactly on that line (as in Figure 2). Further analysis revealed that just over a third of the green mold increase was associated with the number of flies. The rest was related to other factors. Figure 2 shows what that line might look like if it were possible to exclude those other factors and the only effect on the number of squares with green mold would be fly populations alone. Figure 2 also shows that at lower populations, each fly has a greater effect on the number of squares with green mold than subsequent flies. We then added several factors known to affect green mold outbreaks.

However, we first looked at factors that could be associated with fly populations, and one that was significant was having a neighboring farm nearby. A neighbor within one mile increased fly counts by 69% compared to not having a neighbor nearby, as shown in Figure 3. It seems those flies really are the neighbor's flies, but now they are yours, and yours are also your neighbors. Therefore, growers should work with their neighbors. Simply blaming them does nothing to reduce fly or disease levels. In addition, rooms in which mushrooms were grown organically, on average, had a fly population 24% higher than rooms in which mushrooms were grown conventionally.

Green mold counts were associated with several different factors. As with flies, green mold counts are lower on farms without close neighbors, Figure 4. This is logical since we have already shown that fly counts can be influenced by proximity to neighbors and green mold counts are associated with fly populations.

As shown in Figure 5, white strains were associated with a 30% reduction in green mold compared to brown strains. The confounding factor here is that brown strains were grown on grain spawn, whereas the white strains were grown on grain-less spawn. We hypothesize that the strain was not the factor affecting the amount of green mold, but rather whether the strain grown on grain-less spawn is causing the difference. This gives a strong indication of the importance of grain-less spawn in reducing green mold, but it also shows it is no silver bullet.

As can be seen in Figure 6, organic production is associated with 25% higher levels of green mold expression.

We see a 434% increase in green mold associated with manually filling Phase II compost, that is, no nets are used to pull the compost down the beds compared to filling Phase I compost and pasteurizing the substrate in the room.

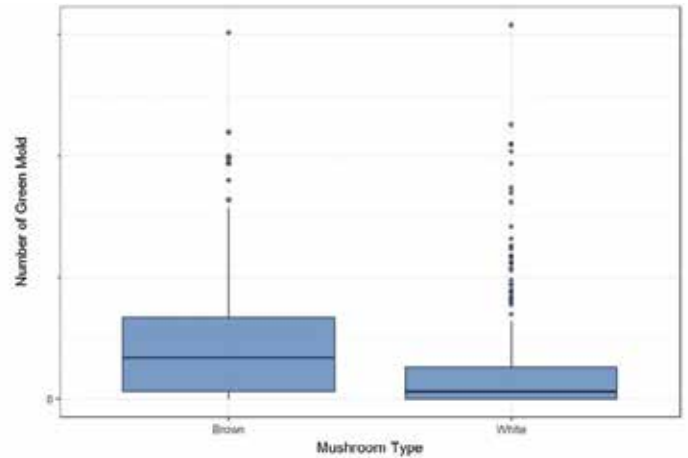


Figure 5: Relationship between mushroom type and number of squares of green mold

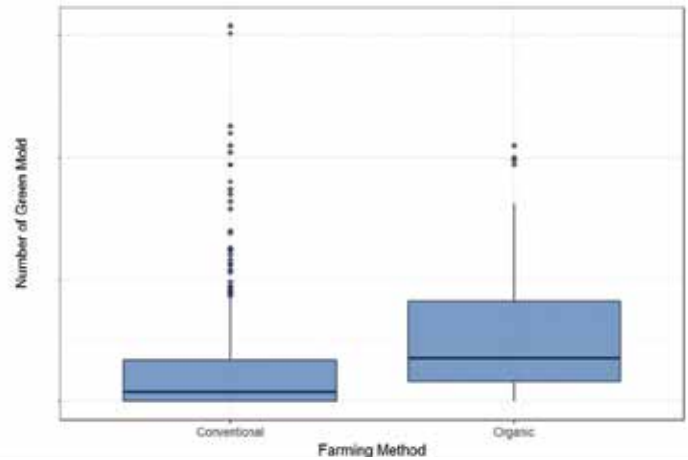


Figure 6: Organic production association with green mold expression

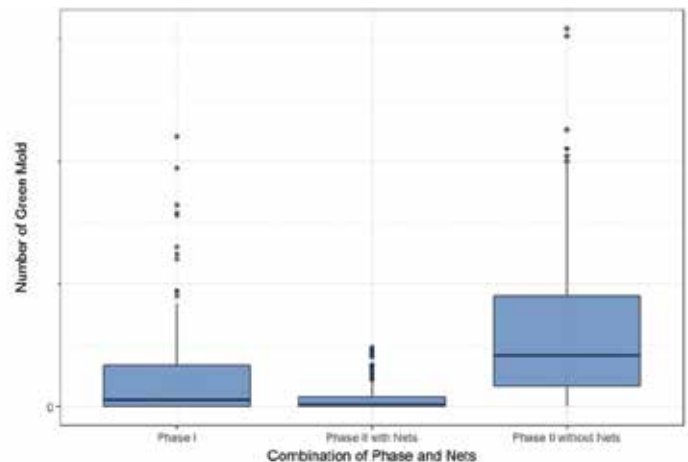


Figure 7: The relationship of green mold expression to filling method.

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We hypothesize the increased incidence of green mold in manually filled rooms is due to compost exposure to and contamination by workers due to the nature of manual filling. Using nets to fill Phase II compost eliminated virtually all the disadvantage of filling Phase II compost. See Figure 7.

Accounting for these additional factors still does not explain everything driving green mold outbreaks, but it does show these variables are significant, and the relative importance of each.

Back to the theory of the magic bullet: there is no such thing. Every one of these techniques if done correctly lowers green mold expression, but not one by itself can eliminate green mold. There is no long-term control strategy that does not include multiple control tactics as part of an effective IPM plan. Growers must always consider many techniques to manage flies and disease. We hope this study will assist growers in deciding on which items to focus when customizing individual IPM plans for their farms. 🍄

The full research article can be found on the Members Only section on the AMI website. Please be advised that access to the article link requires that the article not be shared on third-party commercial platforms, not be shared via social media, and not be shared through subject-based repositories.

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Mushroom Council Calls for Nominations 2022–2024 Term

Final call for nominations for 3-year terms beginning January 1, 2022. Completed forms must be emailed or postmarked no later than May 3, 2021. The regions with positions available are:

Region 2 (PA)
two open positions

Region 3 (CA)
one open position

Mushroom growers have ideas, skills, experiences and perspectives that would benefit the industry; be a voice for your industry by becoming part of the Council. If you did not receive a nomination form and believe you are eligible to vote, contact cheryl@mushroomcouncil.org. The U.S. Department of Agriculture and the Mushroom Council encourage all eligible producers, including women, minorities and individuals with disabilities to participate and seek nomination. 🍄



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Figure 2: Covering disease with a wet paper towel before salting traps dislodged spores that may otherwise spread when salt is dumped.

Do You Really Need the Wet Paper Towel when Covering *Syzygites*?

KATIE MORRISON | BILL BARBER | Giorgi Mushroom Company

For several years, *Syzygites megalocarpus* presented growers with achievable challenges that did not require employees inordinate time to scout and cover infections, or financial loss from early crop termination. The disease mostly thrived on harvesting debris (knockovers and stumps) and favored brown mushrooms. As the disease lingered on mushroom farms, it increasingly became a more demanding challenge for growers of both brown and white mushrooms, spreading to otherwise harvestable mushrooms, and appearing both pre and post-harvest. Each year *Syzygites* presence increased, as shown at Giorgi Mushroom Company (GMC) in Figure 1, though it perhaps was predictable since the number of brown and organic rooms increased along with the disease. This increase has required more farm inputs to avoid crop loss from early termination or rejections postharvest.

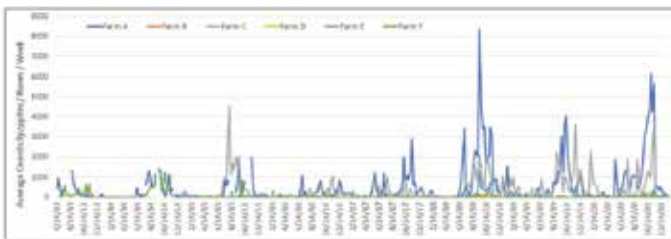


Figure 1: Average *Syzygites* per room per week by farm at GMC since 2013.

Early observations of *Syzygites* infection by the industry and scientists led to the decision to cover infections using the “Cobweb technique,” shown in Figure 2. A piece of paper towel is sprayed with water and carefully placed on top of the *Syzygites* infection. Salt is poured by circling the edge of the paper towel and working inward to form a pile.

Tearing, wetting and placing the paper adds roughly 15 seconds per infection to a disease scout’s workload. Due to the increasing amount of *Syzygites* at GMC, we hoped to improve efficiency by eliminating the paper step. To our knowledge no one had confirmed the need for this step in either laboratory or room testing, though experiments were conducted on the ease with which the disease could spread with disturbance by air currents (Beyer et al., 2018) and splashed water. Also, it was thought that the extra time tearing, wetting, and placing the paper takes over just a salt application would be additional time for the existing infections to spread spores throughout a room.

Lab testing conducted by Rebecca Miller determined the procedures for room trials. Four PDYA agar plates were placed six inches from roughly equal sized fruiting *Syzygites* colonies (Figure 3) and exposed to one of four treatments for 60 seconds: salt only, wet paper towel plus salt, dry paper towel plus salt, or nothing (control). Exposed plates were maintained at 75° F for 24-28 hours in an incubator to assess disease spread from dislodged *Syzygites* spores. The lab tests confirmed that *Syzygites* formed visible colonies within this short time and would be present before other mold spores, such as *Penicillium*, showed on the plates.



Figure 3: Four plates were placed around fruiting *Syzygites*.

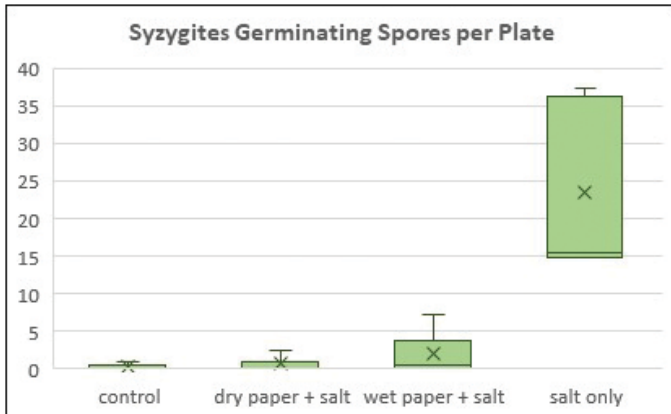


Figure 4: Average *Syzygites* spore germination across the four treatments.

Syzygites Counts per Plate			
Control	Salt + Dry Paper	Salt + Wet Paper	Salt
0.2	0.6	2.0	23.6

Figure 5: Number of *Syzygites* spores germinated after 24-28 hours.



Figure 6: Growth on plates after 24 hours at 75° F.

Plates were exposed in a growing room with a moderate infection level. The test was repeated in multiple growing rooms bringing the total exposures to 33 sets of plates. Salt alone resulted in twelve times more *Syzygites* growth than those that had wet paper applied before salting, with 23.6 germinating spores per plate versus 2.0, respectively. Dry paper resulted in an average of 0.6 germinating spores per plate (Figure 4) but was not significantly different than treatments receiving a wet paper towel. The control had an average of 0.2 germinating spores per plate (Figures 5 and 6).

Salt was dumped aggressively when paper was not used because it was presumed that disease scouts would do this. Obviously that action dislodged and spread spores just as watering an untreated infection will spread the disease. The paper towel step prevented or significantly limited the spread and cannot be eliminated. Though applying a dry paper towel may slightly reduce the time it takes to cover

infection, it should be noted that a larger piece of paper, and therefore more salt, is needed to cover the infection properly. The wet paper towel conforms well to the infection, and a smaller piece can be used. Very likely the time gained by not wetting the paper towel will be offset by the increase in time to apply salt. Efficiencies can be gained by using a modified harvesting hanger to hold the paper towel roll, salt supply and water bottle shown in Figure 2, and salt barrels on trash can dollies in the growing room where the scout is working. 🍄

REFERENCES

Beyer, D.M., Pecchia, J.A., de Soto, J. (2018). A Summary of the Etiology & Epidemiology of *Syzygites megalocarpus* Disease of *Agaricus*. *Mushroom News*, 66(7), 10-14.

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Bracing for Impact: How Associations Keep Flying During a Pandemic

LORI HARRISON | American Mushroom Institute

Over the past year, we've explored how the pandemic has impacted AMI members. What we haven't addressed, however, is how the pandemic has impacted AMI. If we continue the flying metaphor from the title above, operating an association—and specifically AMI—during a (once-in-a-lifetime) pandemic is like building a plane in mid-flight—there's a lot to do and you better start quickly.

In general, the goal of associations is to promote positive outcomes for the industry in which they operate. For AMI, that means continually listening, anticipating, and responding to issues affecting mushroom production, processing, and marketing; influencing policy; supporting research and innovation; developing best practices; providing communications to and about members; and

offering networking opportunities and shared problem-solving opportunities, to name a few.

It was important for AMI, and our first order of business, to keep our members informed. Early on, there were significant amounts of information coming in from a variety of sources, and it was AMI's job to sift through and disseminate information necessary and useful to members.

It was essential—and continues to be—that AMI be in contact with legislative and regulatory officials on every level. Through relationships we cultivated on our own and those with partners such as United Fresh, AMI was able to develop and provide key information on issues like Paycheck Protection Program loans, Box Food programs and Worker Safety best practices. In fact, the mushroom industry was one of the first to create and disseminate

COVID-19 Best Practices tailored to its own industry. This is where all the leg work pays off for members—spending time pre-pandemic establishing relationships, educating lawmakers on the significance of the mushroom industry, and positioning AMI as a trusted source of information and thought-leadership has put AMI ‘at the table’—in other words—legislators answer our calls. And as the country—and the mushroom industry—pivots to vaccines, our work continues.

Perhaps the most noticeable impact of the pandemic is the way in which AMI interacts with members. We, like everyone else, moved our in-person meetings online. AMI had already invested, in 2019, in remote meeting technology to assure that meetings could be attended by members across the country. So while we were a bit ahead of the Zoom boom, the need to address the pandemic issues at hand, which required an online-only approach to work, afforded us the opportunity to look strategically at how to create a sense of engagement with and for our members long-term. Building on this, we’ve recently established a Webinar Series program. Our first was in February, with a 2021 Government Relations Initiatives overview, and was followed in March with, “The What, When & How to Position Your Mushroom Business for Modernization.” Think of these webinars as break-out sessions at a conference—with a speaker and/or panelists on a particular topic with a presentation and opportunity for questions and answers. There’s more to come, so watch your emails for updates.

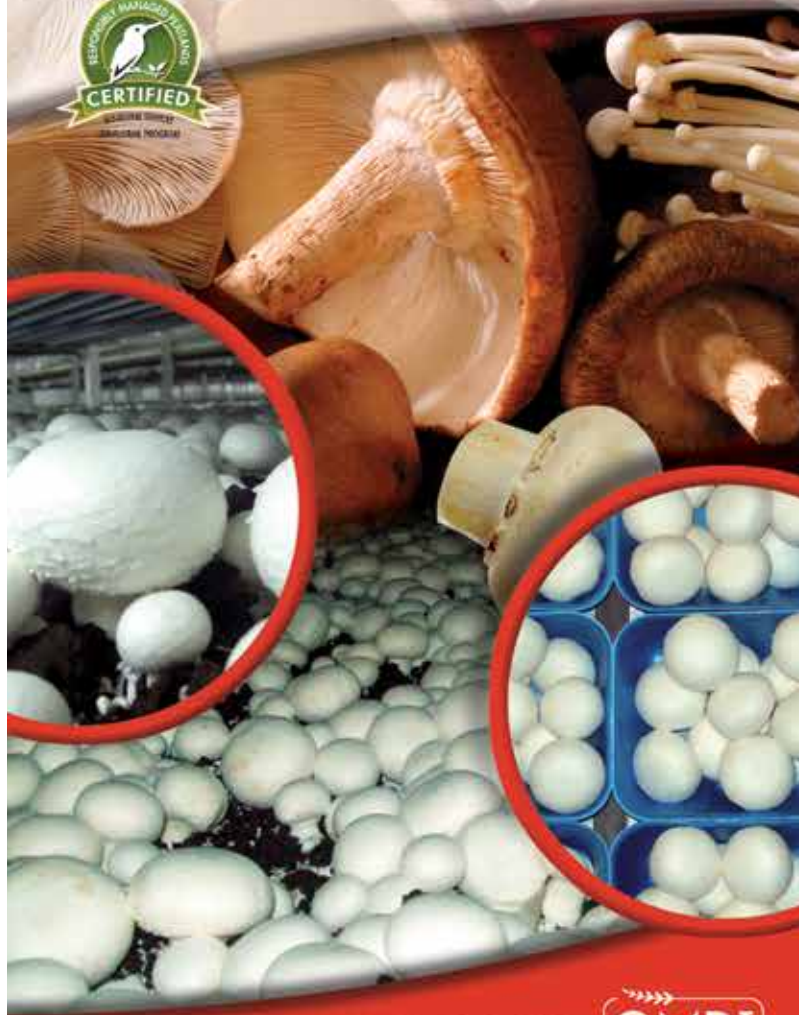
The pandemic has disrupted association business models and AMI is not immune—across associations, membership renewals are soft compared with the previous year. And while that’s not great news, AMI is rising to the challenge to explore market needs, evaluate new segments, and continue the collaborative practices we implemented to strengthen our programs. AMI has a strong value proposition for members and offers priceless returns to businesses in its role as an outsourced resource for each and every member. We hope you agree. As we move (hopefully) past this pandemic, we’ll be reaching out to more growers and suppliers to educate them on the benefits of membership. If you work with a business that might be a good membership fit, feel free to let us know.

Maintaining growth in a crisis requires the desire to ‘keep the plane flying.’ If 2020 taught us one thing, it’s that AMI cannot afford to let a crisis stop growth, whether its enhancement or expansion of programs, reaching more members, increasing revenue, or all of the above. Although we may have had to hit pause in some areas in 2020, the bottom line is that AMI continues to climb and has yet to hit its cruising altitude. 🍄

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Snapshots of Crystal Balls

RACHEL ROBERTS | American Mushroom Institute

In April 2021, while we would all like to be viewing COVID-19 in the rearview mirror, economists and business analysts agree: “The leading economic indicator is...the virus.” (*Marketplace*, March 2021) Unemployment is bumping up against 10% overall, and people who have lost their jobs or transitioned to working at home and are caring for children around the clock will be hesitant to come back into retail positions quickly. According to *Marketplace*, “Despite a solid bump of 379,000 new jobs in February, [the recent] employment report shows a continued rise in one closely watched category: Americans who have been jobless for more than half a year. About 4.1 million workers fall into the category of long-term unemployed, that is, being jobless for 27 weeks or more. That’s nearly four times the number of a year ago, just before the onset

of the COVID-19 pandemic. The statistic applies to roughly two of every five people without a job. And the longer people are away from the workforce, the longer it takes them to return.” (March 2021)

In terms of the food inputs and commodities economy, the United Nations’ annual food price index for February rose for the 9th straight month and is now at its highest level since 2014. (UN Food Price Index, 2021) This is because the cost of grain is rising globally, and the impact on U.S. producers, who may aim to fill some of the international gaps, has yet to be understood or predicted. Corn and soy are among the most impacted, which will drive up food costs generally for U.S. consumers.

On the good *and* bad scale, the Institute for Supply Management and IHS Markit’s purchasing managers index

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(2021) report that construction and auto sales have created a factory boom in the U.S., but the increased demand for manufactured goods has come with major production challenges. Manufacturing employment is struggling to rise back to pre-pandemic levels. However, as the economy recovers from COVID restrictions and demand for manufactured goods like cars and appliances increases, “manufacturers are certainly well ahead of most other industries when it comes to the recovery,” according to payroll processor UKG. Employers report that it’s getting harder to find skilled labor, something that can affect the food industry.

To address all of this, Congress passed a stimulus bill that “went big.” A bulk of the \$1.9 trillion bill was to allocate billions needed to reopen schools safely, to over 7 million renters who owe their equally struggling landlords, to mortgages, to the foodservice economy re-start, and of course to the vaccines getting into people’s arms fast enough while allowing for continued testing as variants challenge scientists to reduce the risks of infection from those. The Biden Administration and Treasury Secretary Janet Yellen consulted with the chief executives of JPMorgan Chase, Walmart, Gap, and other large businesses in developing the bill passage strategy, assuring it made sense to the huge corporations who will be key to the overall economic recovery. The mushroom industry can breathe a sigh of relief that businesses that determine a great deal of the U.S. economy are driving many of the current administration’s business decisions.

The return on investment of the big bill is expected to help companies and small business meet what is believed to be pent-up demand by subsidizing key operating costs—reserves of that most businesses depleted during COVID. The mushroom industry has been fortunate to continue to produce, and as foodservice and consumers make a comeback, the industry also face restart decisions and needs. This is a challenge we want and need, and AMI looks forward to dealing with it in face-to-face meetings when restrictions allow them. 🍄

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Jersey Mike's Debuts Mushroom Sub

CRISTIE MATHER | Mushroom Council

In February, Jersey Mike's Subs joined the 'shroom boom when it debuted the Grilled Portabella Mushroom and Swiss Sub at its more than 1,900 locations nationwide.

The new sub is packed with fresh grilled Portabella mushrooms along with green peppers and onions with melted Swiss cheese. It's a permanent add to the menu and is a delicious, steamy plant-forward option with a truly fresh taste that has both an umami and savory flavor, made even better with the cheese's creamy texture.

To find a nearby location, visit:
jerseymikes.com/locations

"At Jersey Mike's, quality is always a priority and our new Portabella Mushroom and Swiss Sub is grilled to order and made with fresh Portabella mushrooms, onions and peppers," said Michael Manzo, COO, Jersey Mike's Subs, in the company's launch press release.

"It's important to keep this fresh product locally grown, and it took time to organize mushroom growers across the country," said Manzo. "The mushrooms are picked, transported, and delivered to our stores within days of coming from the growers."

Manzo said the new sub brings even more variety to the menu, offering customers a reason to dine at the restaurants more frequently.

"Any time a new vegetarian sandwich hits the market, we get excited, and Jersey Mike's newest meat-free sub is no exception," food media site Thrillist wrote in its Feb. 18 review. "The Grilled Portabella Mushroom and Swiss Sub has only a few simple ingredients, but each goes beautifully together."

Social Media Influencers Share Launch

To help spread the news about the new mushroom sub, the Mushroom Council turned to social media influencers nationwide. "I was SO excited when I saw they had a new Grilled Portabella and Swiss sub because I am such a mushroom girl!" Kelly Towart posted to her 76,000 followers on Instagram (@kellytowart) on Feb. 25. "It's so good I am already planning to go back next week!" 🍄





Starting a Safety Committee

BILL GREEN, 2011 | Updated by BEN SHEETS | Phillips Mushroom Farms

A Safety Committee has two overall missions: to act as a conduit for delivering safety information to the entire workforce, and to provide a channel for feedback and suggestions from the workers.

Some companies and managers view safety as a top-down concept. Management sets out the rules, and the workers are expected to follow without question. One potential issue is without buy-in from the workers, those rules can create dissension and lead to bigger problems—or prove to be inappropriate in real-world situations.

A Safety Committee should include all levels of people within a company, from hourly workers to upper management. While you don't want committees to become so large that they make meetings and decision-making impossible, it's important to achieve that representation of people throughout the company or worksite.

Involving those who will be expected to follow the rules ensures that what may sound good in the executive office is actually practical and beneficial at the worksite. For example, management may react to an increase in claims for hand injuries by mandating that workers throughout a plant or at a construction site wear gloves. However, workers in some roles or areas may be able to point out that gloves will have such a negative effect on their dexterity and

the proposed solution make actually create bigger hazards.

Having a Safety Committee gives you a planned, practical way to address such issues. Instead of dictating the need for gloves, those employees on the Safety Committee could make everyone aware of the increase in claims and ask for ideas to bring to the next meeting. By including workers in developing the solution, there is a sense of ownership and a better chance of buy-in.

Once a Safety Committee is formed, its first goal should be to define its mission and vision. Again, a collaborative process will be more effective and meaningful than handing the members a list of responsibilities. The mission and vision will be slightly different with each committee, but it nearly all will focus on creating a safer working environment for all of the employees, reducing injuries and illnesses, and improving communication about safety throughout the organization.

The first step in making a safety committee work effectively is making sure that it has the right members. As noted above, the most productive committees include participants from a variety of departments in the company, with members representing levels from hourly workers to upper management.

In companies or worksites with fewer than 100 workers,

you can generally obtain the best results with just a handful of members. Even when worksites become much larger, it's good to keep the committee at a manageable size to ensure that all of the participants feel that they are really making contributions.

While it's possible to select the members of the committee through some kind of democratic process such as election, the most effective committees are usually those for which participants are carefully selected. It's also a way to elevate employees who have gone above and beyond—providing them with recognition and responsibility. Remember that the goal is not to ensure that the owner or manager's viewpoint dominates the discussion. Instead, it's to make sure the people sitting on the committee will be good representatives and who will be respected by the workers.

Before you approach specific candidates for the committee, be ready to answer their questions. They'll want to know where and how often the committee is likely to meet, and what expectations management has for the group. Most people will be honored to have been asked, as long as they have a good sense of what's involved.

It may be that some candidates may not be comfortable with the role, or that their work may force them to miss meetings. Give them the opportunity to turn you down.

After all, a participant who is hesitant or who really doesn't want to be there isn't going to be productive on the committee.

Give thought to the term of service, too. It's a good idea to appoint members for a set amount of time, and to rotate positions so that members only need to commit for a year or so at a time. Rotating members is also a way to head off hard feelings about not being selected. If workers know that they may be asked six months or a year down the road, any resentment maybe diminished. You may also want to stagger members' terms so there are no drastic changes at any one time.

Finally, be sure that representatives from management do not dominate the meetings. It's a natural tendency for company leaders to assume leadership roles in committee meetings, but that can be counterproductive. Workers may believe that the committee isn't really interested in their ideas or involvement.

Whether you're starting a Safety Committee or have an established group, consider joining AMI's MESH Committee. The group is an official OSHA Ambassador, meets once a month and shares best practices, resources and more with the goal of keeping businesses and its workers safe. Contact AMI at info@americanmushroom.org for details 🍄



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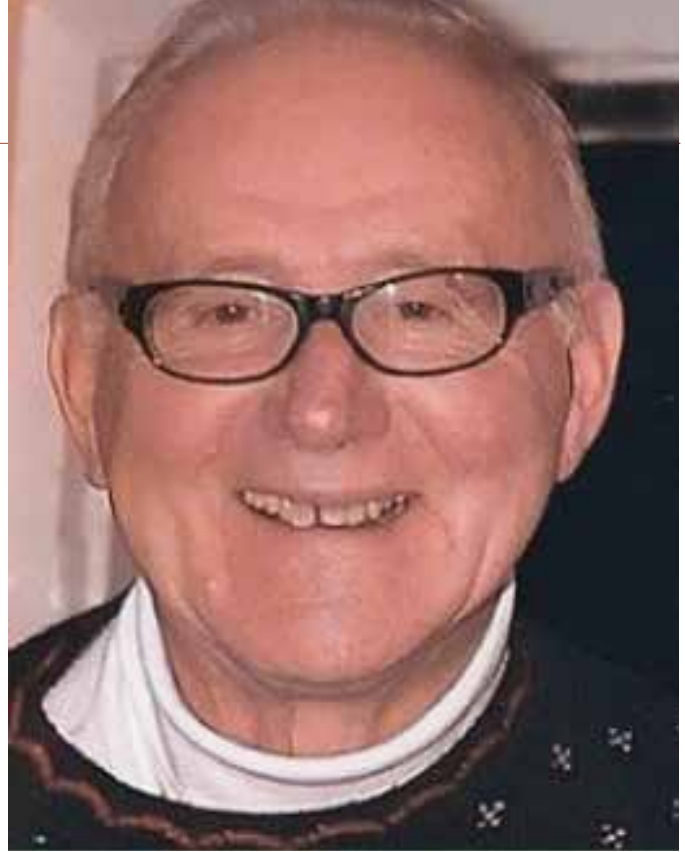
Obituary: John A. Arrell: *A Great Second Act*

John A. Arrell, or “Jack” as he was affectionately known, age 87, of New London, PA, passed away peacefully at home on Saturday, February 20, 2021, surrounded by loved ones. He was predeceased by his wife, Sara Ann Montgomery Arrell with whom he shared 57 years of marriage. Born 1933 in Upper Darby, Pennsylvania, Jack was the son of the late Samuel H. Arrell and the late Frances E. Taylor Arrell.

Jack proudly served his country as an active duty member of the United States Army from May 1953-1955. He worked and retired from Bell Atlantic Telephone Company after 36 years of service on a Friday, and immediately started his second career the following Monday with the mushroom association working for the Needham Companies with his son Steven. Jack quickly became a permanent employee stepping in and addressing issues with DEP, neighbors, and the Township allowing the owners to focus on the day-to-day operations of the business. Jack officially became General Manager of the Needham Companies in 2002.

Jack’s greatest achievements were his family. Jack’s pride and joy were his grandchildren and great grandchildren.

Jack is survived by two sons, John A. Arrell, Jr. and his wife, Patrice of New London, PA and Robert B. Arrell and his wife, Kimberly of New London, PA; one daughter, Amy E. Coppock and her husband, Lawrence of New London, PA; twelve grandchildren, John III, Ashley (William), Justin, Katie, Sean, Brandi, Taylor, Courtney, Ryan, Autumn and Taylor S.; as well as ten great grandchildren, Layla,



Sawyer, Talon, Victoria, Riley, Skylar, Maci, Baylee, Brynn, and Bryce. He was predeceased by one son, Steven Arrell; and two brothers, Samuel Arrell and Robert Arrell.

In lieu of flowers, the family kindly asks contributions be made to Chester County Hospital Foundation, Abramson Cancer Center, 701 East Marshall Street, West Chester, PA 19380 or online at www.cchosp.com/onlinegiving.asp or to the Pennsylvania Conservation District online at www.pacd.org 🍄

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This Month in *Mushroom News* History

Grower Profiles

Progressive, top-notch growers with glowing personalities . . . These words describe Bernardo (Ben) Penturelli and Joseph Tranquillo whose modern mushroom plants are located near Temple, Pa.

The brothers-in-law (Joe married Ben's sister, Michelina) have a lot in common. Their plants — located side by side — were built at the same time in the summer of 1961. The layouts are practically identical. They exchange ideas, share problems and lend a helping hand in any way they can.

Joseph Tranquillo entered the mushroom growing business with his father-in-law, James Penturelli, now deceased, in 1947. Three years later, he became manager of the Berks Mushroom Growers' Cooperative in Temple. He remained in that position until 1953 when he went back into the growing end of the business.

Ben Penturelli seemed destined for a career in the commercial world. After his graduation in 1948 from Lebanon Valley College, where he majored in business administration, Ben went to work for a manufacturing firm, but a few months later he joined his father and brother-in-law in the mushroom business.

They do a lot of thinking about the future of the mushroom industry.

"I'm convinced," Ben told *Mushroom News*, "that the days of the free lance or independent growers are numbered. Growers must become involved in the marketing of mushrooms, and this is best accomplished through a cooperative or some organization that brings a number of growers together. Growers who belong to such groups must give as much support as is necessary to fill all the orders. This is extremely important to the success of any such organization. If you fail to fill an order, you will surely lose the account."

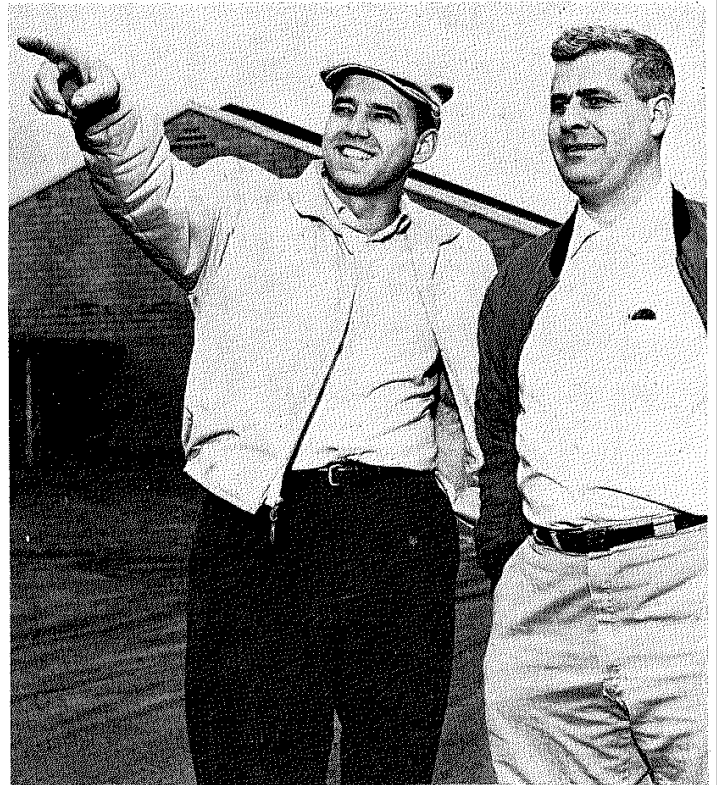
Joe offered these thoughts:

"Growers must become extremely cost conscious and analyze every expenditure to make certain no waste is involved. I think labor is an item that deserves a closer look. Are we being penny wise and dollar foolish employing the cheapest labor available? Is the cheapest labor the most productive?"

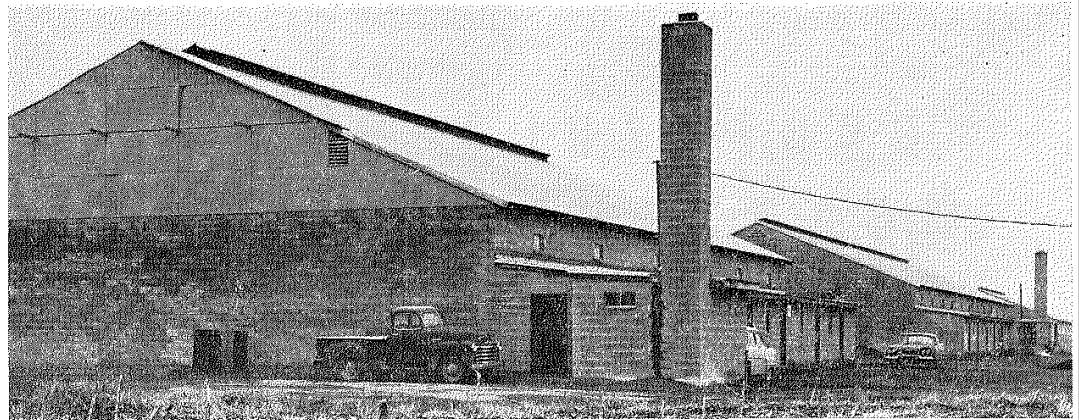
Ben gave these points some further thought. He pointed out that better quality labor is available, right in Pennsylvania. And he also wondered why a piece rate schedule was never set up for mushroom house workers. Persons familiar with labor practices in other segments of farming find it difficult to believe that the mushroom industry has not come up with a piece rate schedule.

A more pleasant topic for the two growers are their families. Joe has one daughter, Barbara, 16, and Ben has two children, Cynthia, 10, and James, 7.

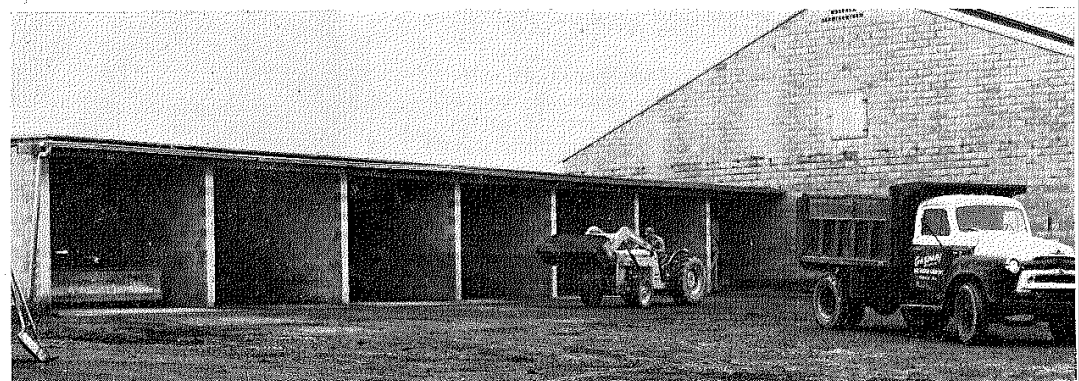
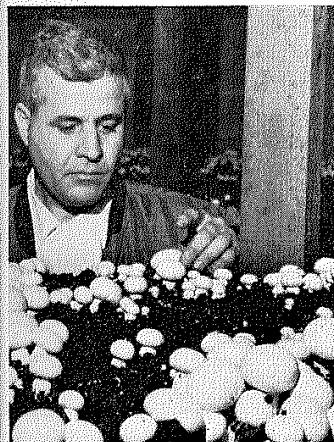
Both growers are members of the board of directors of the American Mushroom Institute and members of Fresh Mushrooms, Inc., Temple. Ben is secretary-treasurer of the Temple group.



Joseph Tranquillo (left) and Ben Penturelli, Temple growers.



Their mushroom houses, located on a hill in an isolated section of Temple, are clean and spacious. The front two are owned by Ben Penturelli, who operates under the firm name of Ben-Mar Mushroom Farms, and the third belongs to Joseph Tranquillo.



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Personality of the Month

(Continued from Page 15)
pe. Although she insists that she does NOT cook by a recipe with measuring spoons but uses her fine experience. t, the pan must be of the n steel omelette pan used by d chefs. It flares at the top is never more than six to t inches across. She abso- ly does not use an iron pan n aluminum pan. She does t wash this special pan at all, wipes it shining clean with paper towels. She uses only et butter (unsalted butter) she urges me to stress the that she does not ever skimp his butter.

Basic Omelette

For one omelette use a well aded tablespoon butter, or it surely stick to the bottom he pan. Warm the butter low heat. Then add the fill- whatever you use, to the ed butter and saute a few utes. Next, beat 3 whole eggs bowl and add 1 tablespoon er (not ever milk or cream), ing with a fork until well ed—about 30 to 45 beatings. rotary egg beater, please. y, turn the flame high under pan and when the butter is t brown, pour the eggs into it. ese are the basic rules which ern omelette making and h she never changes for the le repertoire of her 500 va- es. Her method of sauteing "addeds" is different, and I it very much.

Mushroom Omelette

Wash and wipe perfectly dry mushrooms. Slice thinly saute in the rounded table-

Who to Study

(Continued from Page 1)
announced the appointment of a inating committee for this 's election of new directors. mittee members are as fol-

onald Phillips, Kennett are, Toughkenamon.
lilip Madonna, Avondale, enberg.
rtis Phelps, West Grove- on.
lph Tucci, Rosedale, Con- ville, Boothwyn.
ward Sumner, Oxford, Not- am, Lincoln University, tryville and Maryland.
muel Randazzo, Temple.

spoon (2 level tablespoons) well heated. Saute only a minute or two, for Mushrooms cook fast. Mix Mushrooms well with a fork, then add the 3 eggs lightly salted and peppered to taste, plus one tablespoon water, all beaten briskly with a fork. Turn heat much higher and with the handle of the pan in your left hand and a fork in your right hand, bring the eggs from the sides of the pan to the center. Do this quick- ly, meanwhile shaking the pan so that the eggs will not stick to the bottom. Keep on lifting the eggs with the fork, almost as you do scrambled eggs, until all the liquid runs under. In about 5 more seconds the envelope will form."

"Now transfer the omelette quickly to a warm plate. To do this lift the edge of the omelette nearer you, fold it in half and turn onto the plate."

And — let me add that those fresh Mushrooms so delightfully sauteed — are exactly in the center! Our friend cooks this omelette and has it in your plate in 1 minute. She guarantees you can do the same — if you practice. She told me her mother's instructions: "Try it ten times, twenty times, even fifty times until you have mastered the art."

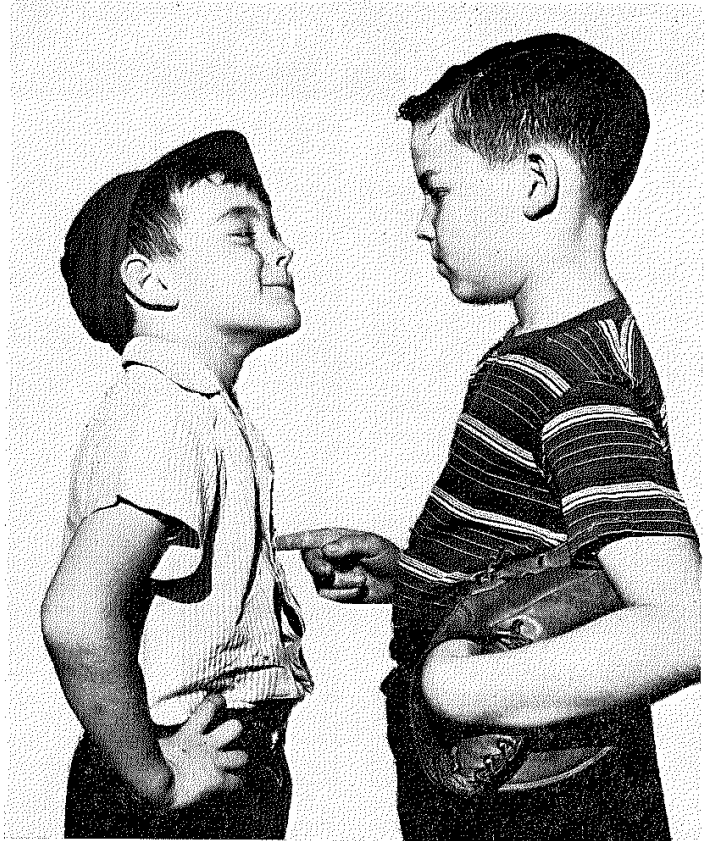
Chive Omelette

"When fresh chives are available in the spring, use them. Just cut them fine (but do not chop them) add to the eggs, then pour the mixture in hot butter and proceed as before.

"But now I have found chives — freeze dried, chopped chives — in a small jar and I like them very much, very much. They are in your omelette, now. I put about 1 tablespoon of them in the butter first and turn them a little, then add the eggs and cook as in my basic recipe for omelette."

Mixed Herbs Omelette

"This is the favorite of the Duke and Duchess of Windsor. The fines herbes consist of parsley, chives, chervil, and tarragon. In the mixture the parsley should dominate. To approxi- mately 2 tablespoons of chopped parsley add 1 tablespoon of chives, only ¼ teaspoon of chervil, and just a soupcon of tarragon. I add, also, a little leek, cut fine. Put the herb mixture



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NEW NAMC SCHEDULE

- Sunday June 12th (evening) - Expo and Cocktail Reception
- Monday June 13th - NAMC Conference & Expo
- Tuesday June 14th - NAMC Conference & Expo
- Tuesday June 14th (evening) - Formal Gala & Closing Ceremony
- Wednesday June 15th - Tentative Tour or Excursion

The conference will remain at Parq Vancouver and we thank all those who have shown their continued support for the conference. More details will be shared in the coming months and we hope to see you all again soon.

For more information visit www.mushroomconference.org.

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Mushrooms Canada &
North American Mushroom Conference Committee

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