

# UTAH BERRY GROWERS ASSOCIATION NEWSLETTER

November 2009  
Volume 3, Issue 2



## Mark Your Calendars UBGA 2010 winter meeting January 21<sup>st</sup>

This year's meeting will be held in conjunction with the Utah State Horticulture Association (USHA), at the Utah County Administration Building at 100 East Center Street, in Provo. This year we'll be having an **all-day meeting** with the morning session held jointly with the USHA, and the afternoon session focusing exclusively on berries.

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**Morning session:** The morning session will have topics of general interest to both tree fruit and berry producers. Topics will include Plant Nutrition, the Organic Fruit Industry, Marketing and Agro-tourism opportunities, and Good Agricultural Practices (GAPs) regulations. Several out-of-state speakers will be featured.

**Afternoon session:** We will be hearing from guest speakers and our own USU Extension specialists. **Wade Butler** of Butler Orchards in Germantown Maryland (<http://www.butlersorchard.com/>) grows strawberries, raspberries and blackberries for pick-your-own and direct market sales. He will provide an overview of their berry crop operation and management strategies. **Sam Erwin** is a fruit farmer from Indiana and owner of Indiana Berry Nursery (<https://indianaberry.com/>). USU Extension Entomologist **Dr. Diane Alston** will give an update of current and emerging insect pests, and **Dr. Brent Black** will provide an update of the bramble variety trial.



Meeting registration is \$20. For advance registration, send payment to:

Taun Beddes  
179 North Main, Room 111  
Logan Utah, 84321

Or register at the door, starting at 8:00 a.m.

A full program schedule will be posted on the Utah State Horticulture Association website ([www.utahhort.org](http://www.utahhort.org))

The North American Strawberry Growers Association (NASGA) annual meeting will be held in conjunction with the Great Lakes Fruit Expo.

Amway Grand Plaza Hotel - Grand Rapids, Michigan

NASGA sessions December 7, Great Lakes Expo Dec. 8-10, 2009

For more information visit their website  
[\(http://www.nasga.org/\)](http://www.nasga.org/)



The next North American Raspberry & Blackberry Conference will be February 24-26, 2010 in Monterey, California.

NARBA hosts an annual meeting, which is typically held in the Eastern U.S. Having this year's meeting in California provides an excellent opportunity for Utah berry growers to attend. If you haven't seen the berry industry around Monterey, it is an impressive sight.

For more information, visit the NARBA website (<http://www.raspberrblackberry.com>)



***Don't miss this first in Utah conference.***

If you think supporting local foods and urban farming in Wasatch Front counties is important, be sure to attend our **Urban Farming Conference** on Monday, **November 16<sup>th</sup>** in West Valley City.

Pull up our website for conference and **registration** details:

<http://wrdc.usu.edu/urbanfarming>

## New Fruit Fly Pest Rapidly Expands its Distribution in the West During 2009

Diane Alston, Entomologist, Utah State University

A new exotic fruit fly pest of tree and small fruits, the spotted wing fruit fly (*Drosophila suzukii*), alarmingly expanded its distribution in Oregon, Washington, and California during 2009. It is now confirmed from at least 11 counties in Oregon and 21 counties in California. The fly also occurs in Florida, and has been established in Hawaii since 1986. The fly was introduced to the U.S. from SE Asia. Due to its rapid expansion in the western U.S. during 2009, it has the potential to be introduced to Utah and cause major economic loss for the state's fruit industry.

The spotted wing fruit fly belongs to the genus *Drosophila*. *Drosophila* differ from Tephritid fruit flies, such as the cherry fruit fly and walnut husk fly, in that *Drosophila* primarily lay eggs in decaying fruit. *Drosophila* is commonly called a vinegar fly - the small flies you commonly see in abundance in the late summer and fall around decaying produce. In contrast, *D. suzukii* attacks a broad range of small and tree fruits, including blueberry, blackberry, raspberry, strawberry, apple, cherry, peach, plum, and persimmon. This is only one of two species of *Drosophila* known to attack unripe fruit.

The adult spotted wing fruit fly is small, 2-3 mm long, with red eyes and a yellowish-brown body. Males have a dark spot near the tip of each forewing. Females do not have a wing spot, but have an ovipositor on their tail end to insert eggs into fruit. The maggots grow up to about 3 mm in length and are white to cream colored. *D. suzukii* larvae are about 1/3 the size of cherry fruit fly larvae. *D. suzukii* thrives at temperatures between 68-85°F. They can complete a generation in 8-14 days at ideal temperatures and have multiple generations per year (up to 13 generations per year have been observed in Japan). A female can produce more than 300 eggs in a lifetime. Larvae will pupate both within and outside fruits. It is not known how well this fly will overwinter in the cooler climates of the Northwest; however, because it is established in California, there is great potential for continual reintroductions.



*Drosophila suzukii* male fly (left) and larva on a blueberry fruit. Photo credits: G. Arakelian, Los Angeles County Agricultural Commissioner/Weights & Measures Department (left); M. Reitmajer, Oregon State University Research Technician, Corvallis, OR.

Fruits infested by *D. suzukii* have small scars and indented soft spots on the surface made by the female's ovipositor. Eggs hatch in 1-3 days and maggots feed in the fruit flesh. Within as little as 2 days, fruit begin to collapse around the feeding site. The fruit is susceptible to rot and severe crop loss can result. The implications for fruit export may be severe, depending on quarantine regulations.

To monitor for *D. suzukii*, several types of baited traps have proven effective. A nalgene bottle with a perforated lid can be filled with ripe banana or strawberry puree, apple cider, or yeast-sugar-water mix. Several types of commercial traps include the McPhail, Omni, and Rescue FlyTrap. GF-120, a bait mixture plus

the insecticide spinosad will attract and kill the adult flies. A sweep net can be swept through an orchard or caneberry canopy, or over dropped fruit and shaken over a container of soapy water to collect the adults for counting.

Two key steps for management of *D. suzukii* include controlling the flies before they lay eggs and reducing breeding sites by immediately removing and destroying infested fruit. A raspberry insecticide trial conducted in California showed that Mustang and Malathion were effective in reducing adult flies for up to 2 weeks after treatment, while Entrust and Pyganic were only moderately effective and provided only one week or less of fly suppression. It isn't known how early in the season the different types of fruit may become susceptible to egg-laying under Utah conditions. If this fly is detected in the state, then continual fruit protection from early development through harvest would be prudent. The potential for spread and economic impacts of this new invasive pest are high. Fruit crops in Utah should be monitored carefully and any suspected infestations reported immediately to the Utah Department of Agriculture and Food and Utah State University Extension Service. If this fly is introduced to Utah, it is going to require a well-organized team effort to prevent negative impact to the state's fruit industry.



Cherries damaged by *D. suzukii* (left) and collapse of blueberry fruit damaged by *D. suzukii* around oviposition and feeding site. Photo credits: University of California Cooperative Extension, Mariposa County (left); D. Bruck, USDA-ARS Horticultural Crops Research Laboratory, Corvallis, OR.

#### Additional sources of information

Further details on identification,

<http://cemariposa.ucdavis.edu/files/67726.pdf>.

Further biological information is summarized by California scientists,

<http://ucanr.org/blogs/blogcore/postdetail.cfm?postnum=1483>

Additional images of damage to cherry fruit can be viewed, <http://cemariposa.ucdavis.edu/files/67726.pdf>

Importance, detection and management of SWD,

[http://ucanr.org/blogs/strawberries\\_caneberries/](http://ucanr.org/blogs/strawberries_caneberries/)

McPhail and Omni traps can be ordered from pest management supply companies such as ISCA technologies (California) and Cooper Mill Ltd (Canada). The liquid Rescue Flytrap can be ordered from Ace Hardware, etc.

#### Acknowledgements

Oregon State University; Oregon Department of Agriculture; USDA-ARS HCRL scientists in Corvallis, OR; Florida Dept. of Agriculture, Division of Plant Industry; California Agriculture and Natural Resource (ANR) blogs, University of California Cooperative Extension, and California Farm Bureau Federation.

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## NEW USU FACTSHEETS

For many in Utah, Raspberry Horntail was a devastating pest in 2009, and the population seems to be increasing. USU Extension recently posted a new fact sheet detailing what is presently known about this pest. This fact sheet can be accessed at <http://utahpests.usu.edu>, click on the fact sheets link and search for horntail. The direct link is



<http://extension.usu.edu/files/publications/factsheet/raspberry-horntail09.pdf>

At the 2007 UBGA winter meeting, Dr. Marvin Pritts from Cornell University gave a presentation on growing raspberries in high tunnels. After the interest sparked by his presentation, USU began conducting research and demonstration trials on high tunnel fruit production. Initial experiences from this work have been summarized in a new USU Extension factsheet "Fall-

bearing Raspberries in High Tunnels". The fact sheet can be accessed at <https://extension.usu.edu/files/publications> under the High Tunnels' link. (for direct access go to [https://extension.usu.edu/files/publications/publication/Horticulture\\_HighTunnels\\_2009-01pr.pdf](https://extension.usu.edu/files/publications/publication/Horticulture_HighTunnels_2009-01pr.pdf))

**Horticulture**  
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COOPERATIVE EXTENSION

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[extension.usu.edu](http://extension.usu.edu)  
Horticulture/HighTunnels/2009-01pr

### Fall-bearing Raspberries in High Tunnels

*Daniel Rowley*, Graduate Student, *Brent Black*, Extension Fruit Specialist, and *Dan Drost*, Extension Vegetable Specialist

**Introduction**  
High tunnels have proven to be an effective method for extending the raspberry growing season in Utah and other areas of the United States. Depending on the climate, outdoor fall-bearing raspberry yields can be reduced significantly by the first killing frost in the fall.

samples should be taken and a soil test performed by a reputable lab. The Utah State University (USU) Analytical Laboratory located on the Logan campus provides soil testing services. To learn more, visit their Web site at <http://www.usual.usu.edu>. Based on test results, recommended amendments should be added and

## **BEST MANAGEMENT PRACTICES FOR SMALL FRUIT: New York Growers Share Their Keys to Success**

(Reprinted from: New York Berry News, [Vol. 8 No. 2, February 16, 2009.](#))

*Rebecca Harbut, Cathy Heidenreich, Laura McDermott, and Marvin Pritts,  
Department of Horticulture, Cornell University CALS, Ithaca, NY 14853*



**T**his is the third article in a series detailing results of a NYS Berry Grower Survey conducted November 2007, as part of the 2007-2009 NYFVI Berry Production Efficiency Project. Survey participants were asked to identify management practices giving them the best production efficiency for various small fruit crops. Best management practices information collected from 89 growers across 37 NYS counties has been tabulated and will be shared through this series. Currants and gooseberries were highlighted in the December 2008 issue. Blueberries were the crop for discussion in last month's installment. Brambles (raspberries and blackberries) are the topic for discussion in this issue. Watch for strawberries in the March, 2009 edition.

*Our thanks to the New York Farm Viability Institute, the New York Berry Growers Association and Cornell University CALS Department of Horticulture for their support of this project.*

### **Planting Establishment**

Success when establishing a planting of raspberries or blackberries is largely dependent upon the growers' ability to choose a proper site. A good site has physical characteristics that help reduce pest pressure and insure good plant vigor while also allowing for easy market access. These site attributes include: a location close to a market; well drained fertile soils; a 3-5% slope; easy access to irrigation water; no wild brambles in the immediate vicinity.

After choosing the site, proper preparation is important. NYS growers weighed in with their experiences in a recent Best Management Practices Survey.

Failure to manage weeds can cause more crop loss than diseases and insects combined, so attention to weed control the year prior to planting is very important. Many growers mentioned the importance of eliminating perennial weeds, but only a few noted the use of cover crops specifically. One grower plants either a rye crop or a sorghum/sudan grass mix the year prior to planting berries and finds it very helpful. The choice of cover crop will vary depending upon circumstances, but growers are encouraged to use a minimum of one cover crop prior to planting. An ideal plan would be to use buckwheat the summer before planting, till and then plant rye the fall before the spring installation.

Many farmers use a post-emergent, broad-spectrum herbicide like Round-up as a pre-plant strategy the summer before planting. Following that spray with a fall cover crop would improve soil organic matter as well as reduce weed pressure. Some growers had success with Round-up immediately prior to spring berry planting, as a kind of stale seed bed method and a few others were solarizing the soil using black plastic. This last method was not effective for a number of growers, probably due to the short summers that we have in NY. No one surveyed used fumigants as a site prep tool.





Growers roundly supported the use of nursery grown dormant stock. Only a few mentioned that they prefer tissue cultured plants. Tissue cultured plants work well in a vegetable transplanter and exhibit more uniform and vigorous growth in the first season, but not all varieties may be available. A few growers use suckers to fill in skips later in the season, with the main planting composed of nursery raised plants.

*(Raspberry tissue culture plug plant, photo M. Pritts)*

Some growers are planting on raised beds, presumably to help raise plant roots out of heavy, slow draining soils. Raised beds should be 10-12" high at the peak and 4-6' wide at the base. These beds will dry out quickly, so irrigation is important.

Drip irrigation in a raspberry planting is another practice that had nearly unanimous support. As one grower stated, "If you don't have it (drip irrigation), they won't grow". Attention to soil and plant root moisture is critical in the first season and remains important throughout the life of the planting. Some growers take extra care at planting time and use a Hydro-gel material to coat the bare roots. This material holds soil moisture around the plant and is used frequently when transplanting woody ornamentals. Other growers add kelp and/or compost to the planting hole during planting.

Most plants in NYS are planted at the recommended 2' within the row, and 10' between rows. This spacing has proven optimal for yield and plant health. Growers are mulching their newly planted brambles with organic mulch, with only a few responders using black plastic, and those growers are just using the plastic for first year weed control.



*(Raised bed planting with drip irrigation, photo M. Pritts)*

### **Weed Management**

Responses regarding weed control were quite specific, indicating that growers take weeds seriously. In addition to organic mulch, hand weeding, using mowers and string trimmers, well timed applications of herbicides were mentioned most frequently. Growers are using combinations of pre- and post-emergent herbicides along with judicious use of hand weeding and some cultivation. Cultivation in bramble crops should be reserved for between rows of an established planting – it is very easy to damage the shallow, tender roots of young plants.

Some growers are using black plastic mulch during the establishment year with success. Use black plastic mulch with care. If left on the planting it may encourage soil borne diseases in heavier soils and it may impede new cane emergence. The use of heavy layers of organic mulch is also discouraged, particularly if you have heavy soil. A light layer of straw during the first year and then no mulch is what is recommended to reduce problems with *Phytophthora* root rot.

The same tactics mentioned by growers as working well were also mentioned as not working. This reaffirms that there is no "silver bullet" with weed control. All methods may need to be considered and no method is fool-proof. Constant attention, a full understanding of the weed growth cycle and

site preparation in advance of planting are the keys to good weed control in raspberry and blackberry plantings.

### Production Systems

Attention to detail was the order of the day in terms of best management practices reported by NY berry growers to work well with brambles. These details covered the whole gamut of bramble production from preplant soil testing and amendment to post harvest berry handling and storage.

New York raspberries and blackberries continue to be planted and produced for the most part in field row systems. The row system is usually set up with 9-10 ft between row spacing. In-row spacing varies with type of raspberry or blackberry to be planted. Recommended in-row raspberry spacings are: 2-3 ft for reds, 3-4 ft for blacks, 4-5 ft for purples. Red raspberries not producing many suckers and most yellow raspberries should be planted at 2 ft in-row spacing. Really vigorous reds such as Boyne can be spaced as much as 4 ft in-row. Thorny blackberries should be set 3-4 ft apart in row; thornless blackberries at 4-5 ft.

Row orientation varied with site. North-south rows intercept light more evenly than east-west rows, lessening sunscald and facilitating even ripening of fruit. Rows that run with the prevailing wind, however, dry more quickly than those that block the wind. Breezy sites may get more benefit from east-west rows; calmer sites more benefit from north-south rows.

In areas with heavier soils or drainage issues, raised beds were used to help minimize potential root rot problems. The same characteristics that make raised beds desirable for heavy soils and wet sites also makes drip irrigation systems a must- raised beds are more prone to drying out. Many growers reported routine use of drip irrigation systems (with or without raised beds). Drip irrigation systems were cited to be of particular importance during the establishment years.



*(Two month old raspberry planting, Ithaca, NY, photo C. Heidenreich)*



*(V-trellis system, photo M. Pritts)*

Ten growers advocated regular annual pruning. They emphasized keeping rows narrowed to 18-24 inches and canes thinned to recommended densities within rows. Many suggested early spring as the time when they did these pruning tasks. Several growers favored fall-bearing raspberries, which maybe mowed off in spring instead of requiring conventional pruning. One grower felt alternate year mowing worked best for raspberry production.

Eleven growers reported best production results when raspberries were trellised; five others listed no trellis as a production practice that worked poorly. All those using trellis, whether T or V types, suggested best results were obtained with at least a 2-wire system. One grower mentioned allowing canes to reach 6-7 feet in height worked poorly as they bent over the upper trellis wire.

Interestingly, at the time of the survey only one grower reported production of brambles in high tunnels. This grower indicated the high tunnel production system as working well. Since the 2007 survey results were collected many other small fruit growers have added or are in the process of adding high tunnel bramble production to their operations. One operation in western NY recently planted an acre of mixed high tunnel brambles after earlier successes with raspberries in a smaller tunnel.

At least 2 growers voiced concerns about post harvest berry quality. One wondered what might be a better way to keep berries after harvest. Another commented that berries do not seem to keep more than 2 days- they start to mold almost immediately. Bramble fruit quality may quickly decline in the field and even more rapidly yet after harvest. Careful attention to preharvest factors can extend shelf life. Things to consider include cultivar and site selection, plant health and nutrition, fungicide and pesticide applications.



Frequent harvesting of fields (every 1-2 days) is critical to fruit quality as raspberries ripen quickly and non-uniformly. Pickers should be trained to recognize the proper ripening stage and desired fruit appearance. Berries should pull easily from the receptacle yet be firm and not mushy. They should be picked directly into market containers. Wide shallow containers are best suited for raspberries and blackberries; clear polystyrene clam shells are becoming increasingly popular for this use. Containers should not be filled more than 4 layers high; a pad in the bottom of the clamshell may be advisable to help wick moisture and absorb any juices.

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Post-harvest cooling is the most effective action a grower can take to maintain fruit quality. Forced-air cooling is the method of choice for brambles. Blackberries should be cooled to 41 °F within 4 hours of harvest. Raspberries should be cooled to 34 °F as soon as possible after harvest but always in less than 12 hours. Fruit should be held no more than 2-5 days, depending on cultivar, at 31-32 °F at < 90% relative humidity. (For more information on how build a do-it-yourself forced air cooler for small fruit go to: <http://www.ext.vt.edu/pubs/fruit/442-060/442-060.html>.)

Increased interest in bramble high tunnel production is due in large part not only to improved fruit size and yield but also berry quality. Shelf life for high tunnel berries is often 2-3 times that of field produced fruit. Fruit should still be forced-air cooled after harvest, though to help maintain quality.

### **Fertility**

“Preplant we correct all major nutrient levels based on soil test; adjust pH with lime and correct B; when bearing we use ammonium nitrate as an N source”, was one grower’s formula for success in this area. A combination of soil testing, tissue analysis and observation of crop response is the best approach to good bramble nutrition. Preplant is definitely the time to make major nutrient adjustments and changes. Amendments should be applied and work down into the top 8” of soil. Soil pH needs to be checked on a regular basis and complete soil testing done every 3 years. Leaf analysis in late summer will help fine tune fertilizer applications the following spring. These should be done at least every other year. Growers should always be on the lookout for unexplained changes in leaf appearance or reductions in growth or yield.

Most growers indicated they were using a balanced fertilizer (i.e. 15-15-15) applied as a single application in spring to established plantings. This was an interesting fact as research indicates nitrogen is more efficient applied as split applications. Recommendations are usually for a first application in May, followed by a second application in June.

Organic growers indicated they were using a range of products including composts, organic liquid fertilizers, and manures. Too much manure was non-advantageous in one instance as it provided rodents with places to hide...

Growers who did not fertilize all were in agreement that was definitely not a best management practice.

### **Pest Management**

Two fifths of the growers that were asked about successful strategies for disease management in bramble crops implied that they do not manage diseases. After looking at how growers responded in other areas of the survey, it seems likely that these growers do not understand that disease management is far more than spraying fungicides. Cultural controls like proper site selection, weed management, proper pruning and trellising, mowing and thorough picking are very important disease management strategies. Twenty-five percent of responding growers listed these types of strategies as their primary disease control method, but grower responses elsewhere in the survey indicate that almost all growers are using some combination of cultural methods to help reduce disease pressure.

Fifty percent of growers do use chemical sprays to control disease in their raspberry planting. Most of these folks were trying to control gray mold on fruit and did so with well timed sprays at bloom and immediately after bloom. Only one grower indicated that they were making weekly sprays to control disease.

An important area for improvement may be to control cane diseases. Research shows that using an eradicant fungicide just before bud break in the spring will help kill fungi that are normally resistant while the cane is dormant. Only one grower surveyed mentioned that this was part of their disease management program. Cane diseases contribute to poor plant vigor and low yield rendering the planting unprofitable.



*Anthracnose, photo W. Wilcox    Cane blight, photo W. Wilcox    Spur blight, photo C. Heidenreich*

Another important point made by a grower was that insecticide sprays should not be made during plant bloom as this would hurt the bees.

Birds, including turkeys, were problems for 30% of the growers surveyed - much more challenging pests than mammals. Only one grower mentioned having deer problems, and had poor results with

control. Strategies for controlling birds were extremely varied and included propane cannons, bird guard, bird scare balloons and scare tape, yet these same techniques were also mentioned as not working for some growers. The grower with the turkey problem uses netting to successfully discourage them.

One grower mentioned that woodchucks are his nemesis. To control them he is installing fencing this year. In the meantime he encourages teenagers with rifles – and then this grower gives a very interesting description of a fly control technique using the woodchuck carcass. If you would like details, please call.



## Webinar Announcement:

The Northeast IPM center is sponsoring a series of “Webinars” (online seminars) on berry management. I participated in the October 30 program on strawberry weed management. It was very well done and informative.

There is no charge for webcast participation, but registration is required. Connection details are sent to registered participants the day prior to the event. Connections for each webcast are limited to the first 100 people, so register now by contacting Laura McDermott, [lgm4@cornell.edu](mailto:lgm4@cornell.edu).

### Upcoming webinars are as follows:

Wednesday, December 2, Blueberry/Cranberry Production Topics, Dr. Gary Pavlis of Rutgers University will speak on *Blueberry Site Preparation and Fertility Considerations* and Sonia Schloemann of the University of Massachusetts will speak on *Overcoming Blueberry Pollination Challenges*

Wednesday, December 9, Blueberry/Cranberry Insect Management, Dr. Roger Williams of Ohio State University will discuss *Japanese Beetle Management* and Robert Childs of the University of Massachusetts will talk about *Winter Moth: A New Blueberry Pest*.

Wednesday, January 6, 2010 Bramble Production Topics, Dr. Marvin Pritts from Cornell University will present *Growing Brambles in High Tunnels* and Dr. Fumiomi Takeda of the USDA research station in Kearneysville, WV will present his work on the *Rotating Cross Arm Trellis for Brambles*

Wednesday, January 20, 2010, Bramble Weed Management, Dr. David Handley of the University of Maine will discuss the *Cultural Weed Control Options for Brambles* and Dr. Rich Bonanno of the University of Massachusetts will instruct growers on *Using Herbicides Effectively in Bramble Plantings*.

Wednesday, February 3, 2010, Bramble Diseases, Dr. Pam Fisher of the Ontario Ministry of Agriculture in Canada will discuss *Controlling Root and Crown Diseases in Brambles* and Dr. Kerik Cox of Cornell University will speak on *Managing Bramble Viruses*.

Wednesday, February 17, 2010, Bramble Insects, Dr. Hannah Burrack of the University of North Carolina will talk about *Controlling Crown and Cane Borers* and Dr. Alan Eaton of the University of New Hampshire will speak on *Using an IPM Approach to Control Bramble Insect Pests*.

These webinars are also recorded, and past sessions are available online at:  
<http://www.hort.cornell.edu/extension/commercial/fruit/Berries/webcastarchive.htm>

We hope you find the information in this newsletter useful. If you have comments regarding information in this newsletter, or would like to see in future newsletters, please contact:

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