



# WEEKLY CROP UPDATE

UNIVERSITY OF DELAWARE COOPERATIVE EXTENSION

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## Vegetables

**Vegetable Crop Insects** - Joanne Whalen,  
*Extension IPM Specialist*; [jwhalen@udel.edu](mailto:jwhalen@udel.edu)

### Cabbage

We continue to find economic levels of beet armyworm, cabbage looper, diamond back moth larvae and harlequin bugs. Be sure to apply treatments before larvae move deep into the hearts of plants.

### Lima Beans

Continue to scout all fields for spider mites, lygus bugs, stinkbugs and corn earworm. The higher labeled rates of insecticides will be needed for stinkbug control. For corn earworm, higher rates will also be needed if population levels are high and worms are large at the time of treatment. As trap catches continue to increase, multiple treatments may be needed for earworm control.

### Melons

Aphid populations continue to increase. Be sure to apply treatments before populations explode.

### Peppers

In areas where corn borers are being caught in local traps, fields should be sprayed on a 7-day schedule for corn borer control. In areas where corn borer catches are above 10 per night (Greenwood, Laurel and Seaford as of Aug 15), a 5 to 7-day schedule may be needed. Since trap catches can increase quickly at this time of year,

be sure to check local moth catches in your area at

<http://ag.udel.edu/extension/IPM/traps/latestblt.html>.

We continue to find beet armyworms (BAW) so be sure to watch for feeding signs and apply treatments before significant webbing occurs. With the recent significant increase in corn earworm pressure, you will also need to watch for corn earworms infesting peppers.

### Snap Beans

With the sharp increase in corn earworm populations statewide and the increase in corn borer populations (Greenwood, Laurel and Seaford as of Aug 15), you will need to consider treatments for *both corn borer and corn earworm from the bud stage through harvest on processing snap beans*. After the pin sprays, you will need to check our website for the most recent trap catches to help decide on the spray interval between the pin stage and harvest for processing snap beans

<http://ag.udel.edu/extension/IPM/traps/latestblt.html> and

<http://ag.udel.edu/extension/IPM/thresh/snapbeanecbthresh.html>). Once pins are present on fresh market snap beans, a 5 to 7-day schedule should be considered for corn borer and corn earworm control.

### Spinach

Since webworm and beet armyworm moths are both active, be sure to watch for both worm pests as soon as plants emerge. Controls should be applied when worms are small and before they have moved deep into the hearts of the

plants. Also, remember that both insects can produce webbing on the plants.

### Sweet Corn

With the recent sharp increase in corn earworm catches throughout the state, all fresh market silking sweet corn should be sprayed on a 2-day schedule. Be sure to check trap catches for the current spray schedule. Trap catches are generally updated on Tuesday and Friday mornings.

(<http://ag.udel.edu/extension/IPM/traps/latestblt.html>) and

(<http://ag.udel.edu/extension/IPM/thresh/silksp raythresh.html>). You can also call the Crop Pest Hotline for current trap catches (in state: (800) 345-7544; out of state: (302) 831-8851).

Continue to watch for fall armyworm feeding in whorl stage corn. We continue to find economic levels in all late planted fields – often at the 50 to 60% level. A treatment is needed if you find 12 to 15% of the plants infested. Multiple whorl applications are generally needed for fall armyworm control. In addition, you will need to combine a fall armyworm material with a pyrethroid for the first 2 to 3 silk sprays for fall armyworm control. Be sure to check all labels for days to harvest and maximum amount allowed per acre.

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**Vegetable Crop Diseases** - *Bob Mulrooney*;  
*Extension Plant Pathologist*; [bobmul@udel.edu](mailto:bobmul@udel.edu)

### Bacterial Wilt of Cucurbits

Symptoms of bacterial wilt are beginning to show up in cucurbit crops. Symptoms of bacterial wilt will vary depending on crop. In general, plants may wilt during the day in hot weather and recover during cooler parts of the evening and morning. Margins and interveinal areas of leaves become necrotic which cause leaves to appear scorched. Healthy green plants turn chlorotic with time and infected plants eventually collapse and die exposing fruit to sunscald injury. Cutting through stem tissue at the base of infected plants often reveals a coppery-tan color where the bacterium causes the vascular tissue to “plug up”. Control of bacterial wilt begins with controlling **striped and spotted cucumber beetles**, which vector the

pathogen early in the growing season as plants emerge. Late-season beetle control will remain important as fruit begins to mature. Late-season beetle feeding may cause injury to stems ruining aesthetic quality. For more information on cucumber beetle and bacterial wilt control please see the 2007 Delaware Commercial Vegetable Production Recommendations Guide. *Andy Wyendandt, Rutgers Cooperative Extension.*

### Cucurbit Downy Mildew

The forecast for downy mildew is moderate for Friday and Monday and low risk on Saturday and Sunday for Delmarva. The disease is currently moving very slowly. Continue to be vigilant. The forecast is made every Tuesday and Thursday at <http://www.ces.ncsu.edu/depts/pp/cucurbit/>

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## Agronomic Crops

**Agronomic Crop Insects** - *Joanne Whalen*,  
*Extension IPM Specialist*; [jwhalen@udel.edu](mailto:jwhalen@udel.edu)

### Soybeans

As the potential for late season insect control increases, be sure to check all labels for the rates, days from last application to harvest, as well as other restrictions.

Continue to scout for soybean aphids. As a general guideline, treatment is needed through the R5 stage (seed is  $\frac{1}{8}$  inch long in the pod of one of the four uppermost nodes on the main stem) of soybean development if economic levels are present. It may also be beneficial to spray through R6 stage (pods containing a green seed that fills the pod cavity at one of the four uppermost nodes on the main stem) – reports vary as to the benefit of spraying once plants reach the R6 but in some years and some situations there has been an economic return. Spraying after R6 stage has not been documented to increase yield in the Midwest. The suggested treatment threshold from the Midwest is still 250 aphids per plant with 80% of the plants infested with aphids. This number should provide a 5 to 7 day lead time for treatment to avoid economic loss.

Continue to scout for stinkbugs in fields that are in the pod development and pod fill stages. Economic damage is most likely to occur during these stages. You will need to sample for both adults and nymphs when making a treatment decision. Available thresholds are based on beans that are in the pod development and fill stages. We are currently following the same guidelines that are being used in Virginia. Thresholds are also based on numbers of large nymphs and adults, as those are the stages most capable of damaging pods. As a general guideline, current thresholds are set at 1 large nymph/adult (either brown or green stink bug) per row foot if using a beat sheet, or 2.5 per 15 sweeps in narrow-row beans, or 3.5 per 15 sweeps in wide-row beans.

The potential for corn earworm pressure in soybeans remains high. Trap catches remain high throughout the state and moths can be found laying eggs in fields. We have also had reports from consultants that they are finding corn earworm and beet armyworm larvae in fields. *Reports from VA indicate that economic levels are being found in both full season and double crop fields. With the continued high trap catches, be sure to check all fields for earworms. Although open canopy blooming fields will be the most attractive to egg laying moths you should check all fields to be sure you do not miss an infestation.* As a general guideline, a treatment should be considered if you find 3 podworms per 25 sweeps in narrow row fields and 5 podworms per 25 sweeps in wide row fields (20 inches or greater). However, as Ames Herbert indicated in his newsletter this week "these static thresholds were calculated for a 10-year average soybean bushel value of \$6.28. Currently, soybeans are worth closer to \$8.00, which will lower the threshold. The best approach is to access the Corn Earworm Calculator (<http://www.ipm.vt.edu/cew/>) which estimates a threshold based on the actual treatment cost and bushel value you enter."

*Remember, corn earworms will feed on the foliage and the pods. The only way to know if you have an economic level will be to scout. Therefore - be sure to scout all fields for*

*podworms.* The following materials are labeled for corn earworm control in soybeans: Asana, Baythroid, Mustang MAX, Proaxis, Warrior/lambda-cyhalothrin (all pyrethroids), Larvin, Lorsban or Steward. Larvin and Steward act by ingestion on both small and large larvae. *Remember that if you are using a pyrethroid, the primary mode of action on large larvae will be ingestion.* Earworms will need to feed to cause death so you will not see immediate activity from the contact action. Once they ingest the product, they immediately stop feeding. Therefore, fields should not be evaluated for control until 4 days after application. *Small larvae are generally killed by contact as well as ingestion.* It is important that you do not look at fields 1 to 2 days after spraying and assume control failure if large worms are present. This could result in unnecessary re-sprays. As far as beet armyworm (BAW) control, during the last outbreak (2002), the pyrethroids did not provide effective control. Steward provided the best control in VA trials as well as in the field. In grower demonstration trials in 2002, Lorsban also provided good control. In the August 2<sup>nd</sup> VA Pest Advisory, it was stated that Intrepid also performed fairly well on BAW in the 2002 VA trial and it is also labeled for armyworm control.

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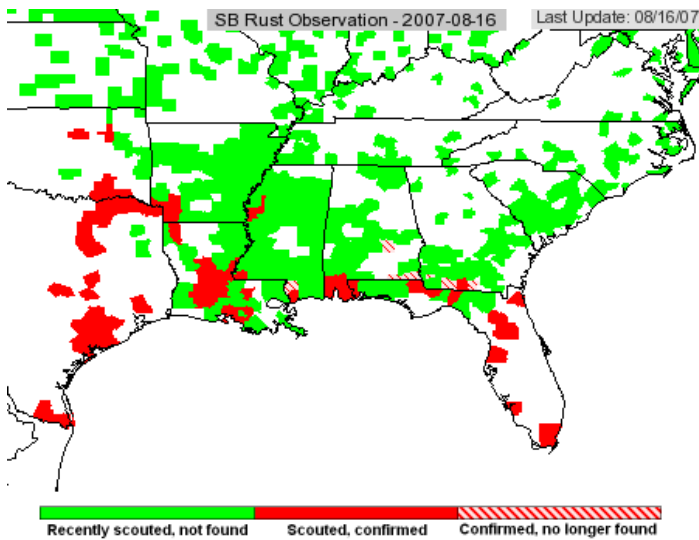
**Agronomic Crop Diseases** - Bob Mulrooney;  
Extension Plant Pathologist; [bobmul@udel.edu](mailto:bobmul@udel.edu)

### **Soybean Rust Update**

Several new detections were made this week on the Florida panhandle as well as one find in southern Georgia. Rust is beginning to spread slowly down South. Weather conditions in the South are very hot so rust development has stopped or is very slow. With the upcoming hurricane and tropical storm season upon us things could change quickly but there is not a large source of spores right now that might make it to us here on Delmarva even if we had a hurricane. The situation is a little different in LA, TX, OK, and MS. They are having hot weather as well and showers but more infection in grower fields. That could produce enough spores to move further north into MO, AK and KS if a

tropical storm or hurricane should hit the Gulf near TX and/or LA.

Local conditions are not favorable for rust infections if any spores should make it here. Disease levels are very low which isn't surprising since it has been so dry. Spraying soybeans for rust or other diseases is not recommended at this time. With the slow development of rust in FL and GA so far, it looks like full season soybeans will be developed enough so that even if rust were to show up in September no fungicide would be needed except for some double crop soybeans. Remember that soybean rust would not affect yields once the beans reach R6, which are fully developed pods. Keep current by checking the IPM PIPE website [www.sbrusa.net](http://www.sbrusa.net)



**Drought Effects on Soybeans** - Gordon Johnson, Kent County Extension Agriculture Agent; [gcjohn@udel.edu](mailto:gcjohn@udel.edu)

Many soybean fields in Delaware are a total loss due to drought. Other droughted fields have sustained so much mite damage that they too will have little or no yield. Even fields that look relatively good have sustained damage due to drought. What follows is information on how drought affects soybeans.

**Critical Growth Stages**

There are two stages for which soil moisture is critical for optimum soybean growth and

development – at planting and during the reproductive stages from bloom through pod-fill. Less important is the time from stand establishment until bloom, unless drought threatens to prevent canopy closure prior to the bloom stage (see discussion of LAI below). At planting, the soybean seed must absorb 50 percent of its weight in water to begin germination. Additional moisture is needed for emergence through the soil surface. A soil too dry to support germination and emergence can give producers cause for concern, especially if the condition lingers for several days or weeks.

Drought from late May through June often results in high soil temperatures, which are detrimental to germination, emergence, and stands. It is not uncommon, for example, for the soil temperature at the 1-inch depth to be 100°F, or more, in mid-June, especially in the light-textured soils of the southeastern coastal plain. If one plants the seed shallow or "dusts them in," there is a possibility that the seed will "bake" from the high soil temperatures and not germinate. Even if there is adequate moisture to initiate germination (seed swell), the stress for young seedlings trying to emerge through a soil layer (1 to 2 inches) of extremely high temperature (95 to 105°F) can be intense enough to cause seedling death. This is part of the reason for poor stands in double-crop beans.

The reproductive stage, from onset of bloom through pod-fill, is approximately eight weeks long and corresponds to a period from the second week in July to the second week in September for most Delaware full-season plantings (depending on maturity group), and from mid August through the month of September for double-crop plantings. Since a soybean crop during this stage uses approximately 1/4 to 1/3 inch of water per day, drought can deal a serious blow to high yield potential due to stress from low soil moisture and high temperatures. Flowers and young pods can abort, thereby reducing the number of seeds produced per plant.

During the first three to four weeks after bloom has begun (full bloom through pod-set) the soybean plant is very sensitive to high temperatures. Seed growth rate in the young

Pods can be slowed dramatically by stress from moisture shortages, high temperatures, or both. After pod-set ends and during the last several weeks before harvest (primarily pod-fill and seed enlargement), soil moisture is extremely critical for achieving good seed weight and subsequent yields. Late stress can cause small, shriveled seed with low weights.

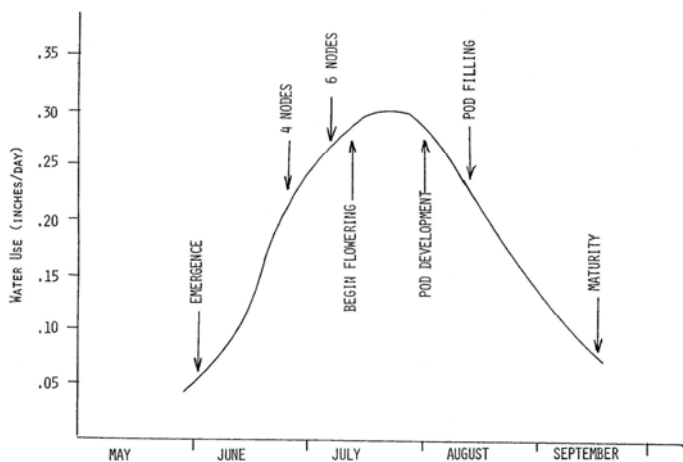


Figure 1. Estimated water requirements for full season soybeans

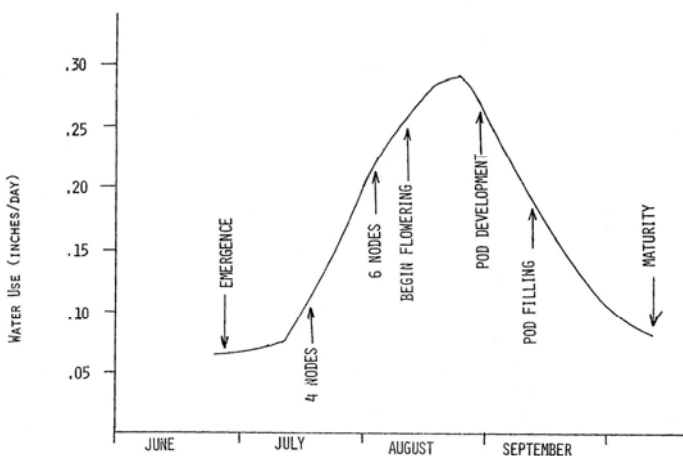


Figure 2. Estimated water requirements for double cropped soybeans

*Figures from "Water Requirements for Corn, Soybeans, and Vegetables in Delaware" by Ritter, Williams and Scarborough, University of Delaware*

### Photosynthesis, Flowers and Pods

Soybeans utilize sunlight at top efficiency for photosynthesis when the crop has about four acres of leaves per acre of land. This is what

crop physiologists refer to as a Leaf Area Index (LAI) of 4.0. With a LAI of less than 4.0, soybeans will not capture all the available sunlight and yields will be reduced accordingly. Uncaptured sunlight may be used by weeds, which may have otherwise died or suffered suppressed growth, or it may contribute to increased soil temperature and evaporation of soil moisture. In any case, complete canopy coverage (as measured by LAI) by bloom time is very important for efficient utilization of sunlight and soil moisture.

When plants encounter drought, they typically reduce the size of their leaf pore openings (stomates), effectively reducing the loss of water vapor. This also reduces the intake of carbon dioxide and manufacture of photosynthates, and slows plant growth. High temperatures, especially at night, can actually increase plant respiration, using up photosynthates that could ultimately have gone to pod fill. When drought stress is relieved, either through rainfall or irrigation, stomates open up and normal growth is resumed. This ability to drastically reduce water loss lets plants tolerate extended dry periods without dying or harming their ability to resume growth when moisture becomes available. However, overall plant yields will be diminished.

A soybean crop typically produces many more flowers than pods, and yield is relatively unaffected by which flowers become pods. The number of pods carried to maturity will primarily be a result of the amount of photosynthate available during pod-set. If more pods are present than the supply of photosynthate can support, the plant will abort (or shed) pods. If fewer pods are available than the photosynthate will support, the plant will probably continue flowering for as much as two to three weeks longer than normal and will set additional pods.

Pods per plant is a reflection of the number of plants per acre and growing conditions during pod-set. The better the growing conditions, the more photosynthate is produced and the more pods set. After pods reach one-half to three-fourths their final size, response to available photosynthate is expressed in seed size and seed weight. Number of seeds per pod is primarily a genetic characteristic of the variety. Seed size

depends on the number of seeds per acre of crop and the environmental conditions during the final three to four weeks of the growing season.

*Extracted and modified from "Managing Drought Stressed Soybeans in the Southeast," North Carolina State University.*

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**Grain Marketing Highlights** - Carl German,  
*Extension Crops Marketing Specialist;*  
[clgerman@udel.edu](mailto:clgerman@udel.edu)

### **USDA Projects Stronger U.S. Corn Production and Ending Stocks**

USDA's first survey-based forecast for '07 row crop production is now in the books. The August production forecast for U.S. corn was estimated at 13.054 billion bushels, 214 million bushels more than the July estimate and 2.519 billion bushels larger than the '06 harvest. Ending stocks are projected to increase by 14 million bushels, now placed at 1.516 billion bushels. The 214 million bushel increase in the production forecast came from a 2.5 bushel per acre increase in the national average yield, now estimated at 152.8 bushels per acre.

On the demand side, USDA increased the forecasted use for corn in the Feed and Residual category by 50 million bushels and increased the projection for U.S. corn exports in the '07/'08 marketing year by 150 million bushels from the July estimates. The Ethanol for Fuel category was unchanged from a month ago at 3.4 billion bushels, reflecting a 1.250 billion bushel increase from the '06/'07 marketing year. The projected season average U.S. farm price was left unchanged, ranging from \$2.80 to \$3.40 per bushel.

Estimated world ending stocks for corn took a big hit, decreasing 6.13 million metric tons from last month, now estimated at 102.23 mmt. The carry in from the '06/'07 marketing year was 100.20 mmt.

### **Soybeans**

The production forecast for U.S. soybeans was unchanged from a month ago at 2.625 billion bushels. Ending stocks for the '07/'08 marketing

year were reduced 25 million bushels from the July estimate attributed to a 25 million bushel decrease in the Beginning Stocks (carry over) from the '06/'07 marketing year. Ending stocks for soybean oil were increased 120 million pounds, now estimated at 2.225 million pounds. Ending stocks for soybean meal were left unchanged at 300 thousand short tons. The projected season average U.S. farm price was unchanged from last month, ranging from \$7.25 to \$8.25 per bushel.

Estimated world ending stocks for soybeans were reduced slightly from the previous month and are projected to be 12.89 mmt less than last year.

### **Wheat**

The production forecast for U.S. wheat production decreased 24 million bushels from a month ago due to a reduction in harvested acreage and yield. U.S. wheat production for the '07/'08 marketing year is now estimated at 2.114 billion bushels, 302 million bushels larger than last year. Ending stocks for U.S. wheat were also reduced 14 million bushels from the previous month and are now estimated at 404 million bushels.

On the demand side less wheat is projected for Feed and Residual use, decreasing by 35 million bushels, now estimated at 180 million bushels. The projection for U.S. wheat exports for the '07/'08 marketing year was increased 25 million bushels, now placed at 1.075 billion bushels. The projected season average farm price was increased 30 cents per bushel.

Estimated world ending stocks for wheat were reduced 1.97 million metric tons from last month, now estimated at 114.78 mmt. This is the lowest level for world wheat stocks since the '95/'96 marketing year when wheat futures hit a high of \$7.17 or \$7.50 per bushel, depending upon whose argument one uses for which price constitutes the high. The \$7.50 mark was hit at the Chicago Board of Trade in thin trading on March 20, 1996 after the contract had expired. Many traders consider \$7.17 per bushel to be the high historical price for wheat, achieved in active trading in April 1996.

## Market Strategy

On a recent tour to a portion of the Corn Belt (Illinois) a few observations were made. Corn and soybean crops look good to excellent. The '07 corn crop is made. Whether it rains or not won't make more than one or two bushels difference in the national average corn yield. Early harvest reports are good to excellent. The U.S. should easily hit the 150 bushel national average yield mark (give or take one or two bushels) and the market is likely to trade accordingly into harvest.

The soybean crop needs rain this month for pod and yield development. Since about August 1<sup>st</sup>, a large portion of the Corn Belt has been under heat stress and dry conditions. However, the weather may have broken this morning with rain occurring and the heat alleviating. Currently, new crop soybean futures are down 32 cents per bushel, trading at \$8.22 per bushel. New crop corn futures are trading at \$3.37 per bushel, down 8.2 cents per bushel. It is raining on LaSalle Street. If rain occurs and the temperature alleviates over a large portion of the Corn Belt, we could see as much as \$1.00 per bushel taken out of the new crop soybean price within a few trading days. Dec wheat is trading at \$6.95 per bushel and July '08 wheat is at \$5.82 per bushel. For technical assistance on making grain marketing decisions contact Carl L. German, Extension Crops Marketing Specialist.

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## Announcements

**For Current Agricultural Information from the UD Kent Co. Extension Office Visit the Internet Site**

[www.kentagextension.blogspot.com](http://www.kentagextension.blogspot.com)

### Current Topics:

- Drought increases potential for stalk rot and lodging in corn
  - Alternate hosts for soybean cyst nematode
  - Straw itch mite
  - Available soil water by soil type
  - Remaining water requirements for corn and soybeans by growth stage
  - Effect of water stress on corn and soybean yield losses at different growth stages
  - When should you stop irrigating corn and soybeans?
  - Drought effects on soybeans
  - Drought induced potassium deficiency
  - Potassium deficiencies
  - Soil pH and crop performance revisited
  - Cautions with alternative liming materials
  - Fall emergency forage options
  - Droopy ears in corn
  - Podworm feeding on soybean (picture)
  - Stinkbugs in soybeans
  - Vegetative buffer plantings around poultry houses
  - Corn earworm larvae vary greatly in color (pictures)
  - The new u-pick: selling the farm experience
  - Corn earworm trap catches on the rise
  - Small fruit picks
  - Smyrna weather for the last 30 days
  - Going organic – is it a viable option for your farm?
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# Weather Summary

Carvel Research and Education Center Georgetown, DE

Week of August 9 to August 15, 2007

Readings Taken from Midnight to Midnight

## Rainfall:

0.04 inch: August 9

0.04 inch: August 13

## Air Temperature:

Highs Ranged from 91°F on August 10 to 80°F on August 11.

Lows Ranged from 82°F on August 9 to 57°F on August 12.

## Soil Temperature:

85°F average.

(Soil temperature taken at a 2" depth, under sod)

Additional Delaware weather data is available at <http://www.rec.udel.edu/TopLevel/Weather.htm>

*Weekly Crop Update is compiled and edited by  
Emmalea Ernest, Extension Associate - Vegetable  
Crops*

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