



WEEKLY CROP UPDATE

UNIVERSITY OF DELAWARE COOPERATIVE EXTENSION

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Vegetables

Vegetable Crop Insects - *Joanne Whalen, Extension IPM Specialist; jwhalen@udel.edu*

New Insecticide Registrations

Bayer Crop Science recently received federal and state registrations for their new active ingredient flubendamide. It is the active ingredient in Belt and Synapse. Belt is labeled for sweet corn. Synapse is labeled for a number of vegetables. See labels for use rates and restrictions. They have not been posted to CDMS yet. Bayer also received registration for another new active ingredient spirotetramt which will be sold under the trade name, Movento. It is labeled for aphid and whitefly control on a number of vegetable crops. Please see labels for use rates, restrictions and labeled crops (<http://www.cdms.net/LDat/ld8L5005.pdf>).

Cabbage

Continue to sample for cabbage looper, diamondback larvae and harlequin bug. Although the pyrethroids will provide control of harlequin bugs they are not effective on diamondback in our area. So be sure to scout and select control options based on the complex of insects present in the field.

Cucumbers

Be sure to watch for an increase in cucumber beetle and aphid populations. Fresh market cucumbers are susceptible to bacterial wilt, so treatments should be applied before beetles feed extensively on cotyledons and first true

leaves. Although pickling cucumbers have a tolerance to wilt, a treatment may still be needed for machine-harvested pickling cucumbers when 5% of plants are infested with beetles and/or plants are showing fresh feeding injury. A treatment should be applied for aphids if 10 to 20 percent of the plants are infested with aphids with 5 or more aphids per leaf.

Lima Beans

Continue to scout for spider mites, stink bugs and lygus bugs. Be sure to sample for corn earworm larvae as soon as pin pods are present. A treatment will be needed if you find one corn earworm larvae per 6 ft-of-row.

Melons

Continue to scout all melons for aphids, cucumber beetles, and spider mites. We continue to see an increase in aphid populations. Treatments should be applied before populations explode and leaf curling occurs.

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. As soon as corn borer trap catches increase to above 10 per night, 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 by calling the Crop Pest Hotline (in state: 1-800-345-7544; out of state: 302-831-8851) or visiting our website 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. You will also need to consider a treatment for pepper maggot. We continue to find aphids in fields and populations can explode quickly, especially where beneficial insect activity is low. As a general guideline, treatment may be needed if you find one or more aphids per leaf and beneficial activity is low.

Snap Beans

At this time of year, you will need to consider a treatment for both corn borer and corn earworms. Sprays are needed at the bud and pin stages on processing beans for corn borer control. An earworm spray may also be needed at the pin stage. Just as a reminder, Orthene (acephate) will not provide effective corn earworm control in processing snap beans. If Orthene is used for corn borer control you will need to combine it with a corn earworm material (e.g. a pyrethroid). 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/latest/blt.html> and

<http://ag.udel.edu/extension/IPM/thresh/snapbeanecbthresh.html>). Once pins are present on fresh market snap beans, a 7 to 10-day schedule should be maintained for corn borer and corn earworm control.

Spinach

As the earliest planted spinach emerges from the ground, be sure to watch for webworms and beet armyworms. 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

The first silk sprays will be needed as soon as ear shanks are visible. Be sure to check both blacklight and pheromone trap catches for silk spray schedules since the spray schedules can quickly change. Trap catches are generally updated on Tuesday and Friday mornings (<http://ag.udel.edu/extension/IPM/traps/latest/blt.html> and

<http://ag.udel.edu/extension/IPM/thresh/silksp raythresh.html>). You can also call the Crop Pest Hotline (in state: 1-800-345-7544; out of state: 302-831-8851). A whorl stage treatment should be considered for fall armyworm when 12-15% of the plants are infested. Since fall armyworm feed deep in the whorls, sprays should be directed into the whorls and multiple applications are often needed to achieve control. At this time of year you will need to combine a fall armyworm material with a pyrethroid for the first 2-3 silk sprays for fall armyworm control. Be sure to check all labels for days to harvest and maximum amount allowed per acre.

Disorders in Cole Crops -Gordon Johnson, Extension Ag Agent, Kent Co.; gjohn@udel.edu

Most cole crops will be planted by mid-August in Delaware although late plantings of broccoli and collards will be going in up to the end of the month. Cabbage, cauliflower, broccoli, broccoflower, Brussels sprouts, and collards are important crops for fall income on many vegetable farms throughout Delaware. There are a number of challenges to growing cole crops including producing quality transplants, scheduling plantings for harvest, and pest management (especially insect control). Cole crops are also susceptible to a number of disorders that growers need to be aware of because they can cause issues with marketability.

Tipburn of Cauliflower, Cabbage, and Brussels Sprouts

This problem can cause severe economic losses. Tipburn is a breakdown of plant tissue inside the head of cabbage, individual sprouts in Brussels sprouts, and on the inner wrapper leaves of cauliflower. It is a physiological disorder which is associated with an inadequate supply of calcium in the affected leaves, causing a collapse of the tissue and death of the cells. Calcium deficiency may occur where the soil calcium is low or where there is an imbalance of nutrients in the soil along with certain weather conditions. (High humidity, low soil moisture, high potash and high nitrogen aggravate calcium availability). Secondary rot caused by bacteria can follow

tipburn and heads of cauliflower can be severely affected. Some cabbage and cauliflower cultivars are relatively free of tipburn problems.

Boron Deficiencies

Cole crops have a high boron requirement. Symptoms of boron deficiency vary with the cole crop. Cabbage heads may simply be small and yellow. Most cole crops develop cracked and corky stems, petioles and midribs. The stems of broccoli, cabbage and cauliflower can be hollow and are sometimes discolored. Cauliflower curds become brown and leaves may roll and curl.

Hollow Stem in Broccoli and Cauliflower Not Caused by Boron Deficiency

This condition starts with gaps that develop in the tissues. These gradually enlarge to create a hollow stem. Ordinarily, there is no discoloration of the surface of these openings at harvest but both discoloration and tissue breakdown may develop soon after harvest. Some cultivars of hybrid cauliflower and broccoli may have openings from the stem into the head. Both plant spacing and the rate of nitrogen affect the incidence of hollow stem. Hollow stem increases with wider spacings and as the rate of nitrogen increases. The incidence of hollow stem can be greatly reduced by increasing the plant population.

Cabbage Splitting

Cabbage splitting is mainly a problem with early cabbage. A problem can develop when moisture stress is followed by heavy rain. The rapid growth rate associated with rain, high temperatures and high fertility cause the splitting. Proper irrigation may help prevent splitting and there are significant differences between cultivars in their susceptibility to this problem. Splitting may also be partially avoided by deep cultivation to break some of the plant roots.

Cauliflower and Broccoli Buttoning

Buttoning is the premature formation of a head and because the head forms early in the plant's life, the leaves are not large enough to nourish the curd to a marketable size. Buttoning may occur shortly after planting in the field, when normal plants of the same age should be growing vegetatively. Losses are usually most severe

when transplants have gone past the juvenile stage before setting in the field. Stress factors such as low soil nitrogen, low soil moisture, disease, insects, or micronutrient deficiencies can also cause this problem. Some cultivars, particularly early ones, are more susceptible to buttoning than others.

Lack of Heads in Broccoli and Cauliflower

During periods of extremely warm weather (days over 86°F and nights 77°F) broccoli and cauliflower can remain vegetative (does not head) since they do not receive enough cold for head formation. This can cause a problem in scheduling the marketing of even volumes of crop.

Cauliflower Blanching and Off Colors

The market demands cauliflower which is pure white or pale cream in color. Heads exposed to sunlight develop a yellow and/or red to purple pigment. Certain varieties such as Snow Crown are more susceptible to purple off-colors, especially in hot weather. Self-blanching varieties have been developed to reduce problems with curd yellowing. For open headed varieties, the usual method to exclude light is to tie the outer leaves when the curd is 8 cm in diameter. Leaves may also be broken over the curd to prevent yellowing. In hot weather blanching may take 3 to 4 days, but in cool weather, 8 to 12 days or more may be required. Cauliflower fields scheduled to mature in cool weather (September and October) that are well supplied with water and planted with "self-blanching" cultivars will not need tying. Newer orange cauliflower and green broccoflower varieties are being planted. They are less susceptible to off-colors but still can develop purpling under warm conditions.

Cauliflower Ricing

"Riciness" and "fuzziness" in heads is caused by high temperatures, exposure to direct sun, too rapid growth after the head is formed, high humidity, or high nitrogen. "Ricing" is where the flower buds develop, elongate and separate, making the curd unmarketable.

Development of Curd Bracts in Cauliflower

Curd bracts or small green leaves between the segments of the curd in cauliflower is caused by

too high of temperature or drought. High temperatures cause a reversion to vegetative growth with production of bracts on the head. In a marketable cauliflower head, the individual flower buds are undeveloped and undifferentiated.

Loose Heads in Cauliflower and Premature Flowering in Broccoli

Loosely formed curds in cauliflower can be due to any stress that slows growth making them small or open. Fluctuating temperatures and moisture will also cause less compact growth. In contrast, excess vegetative growth caused by excessive nitrogen can also cause loose heads in cauliflower and broccoli. Premature flowering and open heads in broccoli can be brought on by high temperatures.

Edema on Cole Crop Leaves

Edema is water blistering on cole crop leaves. The most common cause of edema is the presence of abundant, warm soil water and a cool, moist atmosphere. Under these conditions the roots absorb water at a rate faster than is lost through transpiration. Excess water accumulates in the leaf, some parenchyma cells enlarge and block the stomatal openings through which water vapor is normally released from the plant; thereby contributing to further water retention in the leaf. If this condition persists, the enlarged cells divide, differentiate a cork cambium, and develop elongate cork cells externally to form a periderm. The rupture of the epidermis by the enlarged inner cells and the periderm account for the raised, crusty appearance of older edema spots.

Black Petiole

Black petiole or black midrib is an internal disorder of cabbage that has been occasionally noted in recent years. As heads approach maturity, the back side of the internal leaf petioles or midribs turn dark gray or black at or near the point where the midrib attaches to the core. The affected area may be quite limited or may extend for 2 or 3 inches along the midrib. It is believed that this disorder is associated with a potassium (K)-phosphorus (P) imbalance and results when the K level in the soil is low and the P concentration high. High rates of nitrogen may contribute to the problem. Probably, as in the

case with tipburn, black petiole is a complex physiological disorder in which environmental conditions play an important role in symptom expression. Variety evaluation trials have shown that there are differences in degree of susceptibility between varieties.

Floret (Bead) Yellowing in Broccoli

The florets are the most perishable part of the broccoli head; yellowing may be due to overmaturity at harvest, high storage temperatures after harvest, and/or exposure to ethylene. Any development of yellow beads ends commercial marketability. Bead yellowing due to senescence should not be confused with the yellow to light-green color of areas of florets not exposed to light during growth, sometimes called "marginal yellowing".

Brown Floret (Bead) in Broccoli

This is a disorder in which areas of florets do not develop correctly, die and lead to brown discolored areas. This is thought to be caused by plant nutritional imbalances but also may be due to feeding damage on florets from insects such as harlequin bugs.

Information adapted and reprinted in part from "Nonpathogenic Disorders of Cabbage" from Cornell University; "Cole Crops Crop Management" from Prince Edward Island Canada, and factsheets from North Carolina State University on broccoli and cauliflower production.

Agronomic Crops

Agronomic Crop Insects - Joanne Whalen, Extension IPM Specialist; jwhalen@udel.edu

Grass Hay Crops

We have received reports from consultants in Maryland and Delaware regarding insect damage to grass hay crops that are close to cutting. In both cases, the insect causing the damage was fall armyworm. Although there are no thresholds for this insect in grass hay crops, fields should be watched closely after cutting for damage to the regrowth. Baythroid XL, Mustang MAX, and Warrior are all labeled for armyworm control on

grass hay crops. Insects must be small at the time of treatment to achieve control.

Soybeans

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

In areas of the state with high bean leaf beetle counts, be sure to watch for both defoliation and pod feeding. Be sure to check the following link from the Midwest for the most recent decision making information for this insect pest (<http://www.extension.iastate.edu/CropNews/2008/Issues/20080728.htm>).

We just received approval of our Section 18 request for the use of Oberon 2SC (spiromesifin) for two spotted spider mite control on soybeans. ***You must have a copy of the label in your possession before applying this material.*** You can get a copy from Dave Pyne at the Delaware Department of Agriculture. A few details of the label are as follows: (a) One application per season by air or ground at a rate of 8-12 oz per acre; (b) Minimum volume of 10 gallons per acre for ground application and 5 gallons per acre for aerial application; (c) 21 day pre-harvest interval (PHI); (d) Do not apply when bees are actively foraging in and around the treatment area; (e) Section 18 expires on September 15, 2008

Continue to scout for soybean aphids. Since this is more of a cool season aphid, we could see an increase with the recent temperatures. As a general guideline, treatment is needed through the R-5 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 R-6 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 R-6 stage but in some years and some situations there has been an economic return. Spraying after R-6 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. You can also consider using speed scouting to make a treatment decision. Information on how to use speed scouting can be found at: http://www.nwroc.umn.edu/Cropping_issues/2007/Issue9/07_17_07_no4.htm or <http://breeze.ag.vt.edu/speedscouting>

We continue to find sporadic and low levels of corn earworms in fields in Kent and Sussex counties. As corn dries down, moths emerging from larvae found in corn fields will lay eggs in soybeans. 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. Although states to our south reported control failures with pyrethroids in soybeans in 2007, we did not see this in Delaware in 2007. In many cases, poor control in our area was the result of treating too late, treating large worms or using too low of a rate. If using a pyrethroid, you should be using the mid to high range rate. In addition to the pyrethroids, Steward or Lorsban should also be considered, especially if armyworms are in the mix. The pyrethroids will not provide effective beet armyworm control. In the past, we have used the treatment threshold of 3 corn earworms per 25 sweeps in narrow fields and 5 corn earworms per 25 sweeps in wide row fields (20 inches or greater). However, these are static thresholds that were calculated for a 10-year average soybean bushel value of \$6.28. With higher soybean prices, the best approach to determining a threshold 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.

Grain Marketing Highlights - Carl German, *Extension Crops Marketing Specialist*; clgerman@udel.edu

Commodity Prices Higher on Bearish Report
On Tuesday, August 12th USDA released the monthly supply and demand report. The report was viewed as bearish for corn, neutral to bearish for soybeans, and bearish for wheat. Nevertheless, as of the close of Wednesday's

trading corn, soybean, and wheat prices were higher with corn rallying nearly 70 cents per bushel. Expanded daily trading limits are to be in effect for Thursday's trading due to limit up moves for corn, soybeans, and wheat in Wednesday's trading. The markets are seeking price direction. Even if a counter seasonal rally has now begun, the markets will continue to be extremely volatile and susceptible to externalities/outside factors.

Corn Analysis

USDA raised the yield estimate of U.S. corn production to 155 bushels per acre, a 6.6 bushel/acre increase from last month. Planted acres for U.S. corn were reduced 300 thousand acres, now estimated at 87 million acres. Surprisingly, the estimate for harvested acres increased by 400 thousand acres, now placed at 79.3 million acres. Total U.S. corn production is now forecast at 12.288 billion bushels, an increase of 573 million bushels from last month and a decrease of 786 million bushels from last year. Ending stocks for U.S. corn were increased by 300 million bushels and are now placed at 1.133 billion bushels. World ending stocks for corn were projected to be 7.07 million metric tons larger than last month and 10.08 mmt less than last year. USDA lowered the season average price range for corn 60 cents per bushel on both ends of the price range, now estimated at \$4.90 to \$5.90 per bushel.

Soybean Analysis

The yield estimate for U.S. soybeans was lowered by 1.1 bushels, now estimated at 40.5 bushels per acre. The harvested acreage projection increased 1.2 million acres and is now placed at 73.3 million acres. Ending stocks of U.S. soybeans, projected at 135 million bushels, are the same as last year. World ending stocks were increased slightly from last month's projection and last year. The season average price for U.S. soybeans was reduced on both ends of the price range, now estimated at \$11.59 to \$13.00 per bushel.

Wheat Analysis

U.S. production for all wheat, harvested acreage, and yield per acre were unchanged from last month. U.S. production for all wheat, U.S. ending stocks, and world stocks have

increased significantly from last year. The season average price for all wheat was lowered 25 cents per bushel on both ends of the price range, now estimated at \$6.50 to \$8.00 per bushel.

Market Strategy

The price charts for corn, soybeans, and wheat are currently indicating that we may be seeing the beginning of a counter seasonal rally. If true, then we'd expect commodity prices to improve from their current levels. Therefore, no additional sales should be made at this point in time. Decisions will need to be made in the very near future concerning storing unpriced grain or oilseeds in a long cash position, storing grain and buying puts, selling cash grain and buying a call, or simply selling the cash grain and oilseeds. Price volatility, basis weakness, and futures market carry will play a role in making those decisions. Currently, Dec '08 corn futures are trading at \$5.64; Nov '08 soybean futures at \$12.62; and Dec '08 SRW wheat futures at \$8.82 per bushel. For technical assistance on making grain marketing decisions contact Carl L. German, Extension Crops Marketing Specialist.

General

Cleaning Equipment to Prevent Spreading Weed Problems Around - Mark VanGessel, Extension Weed Specialist; mjv@udel.edu

I have seen a number of fields with heavy weed pressure due to escapes. Some of these are suspected to be resistant biotypes, others are just hard to control weeds. If a particular weed is giving you headaches, wouldn't you rather deal with it in only one field rather than all of your fields? Ask yourself, what would you, do if you could no longer use the best herbicide for a problem weed. In vegetables, where we only have one or two broadleaf herbicides, what are your options when they are no longer effective?

Granted weeds that get blown around (like marehail or thistle) or spread by birds (like pokeweed) are difficult to prevent. Nevertheless, many of our problems are due to moving seeds from field to field on equipment;

pigweed and lambsquarters are two that come to mind. Take the time to clean the equipment in the field before it gets moved and isolate where those infestations are located. This is true for all fields. A new weed or a resistant biotype does not just take over a field in one year. A few plants get started and they produce seeds, which next year leads to more plants and more seeds (see where this is going?). Prevent the problems from developing and spreading. Clean the equipment and leave the seeds where you found them.

Announcements

For Current Agricultural Information from the UD Kent Co. Extension Office Visit www.kentagextension.blogspot.com

Recent Topics:

- Disorders in Cole Crops
- Grain Markets Rebound
- Insecticides for Treating Empty Grain Bins
- Green June Beetles on Fruit
- When to Stop Irrigating Corn
- Dairy - Calf Hutch Management
- Equine - The Expecting Mare
- Corn Silage Considerations
- Late Summer and Fall Harvest of Alfalfa
- Fall Fertilization of Forage Crops
- Nutrient Management Initial Certification Classes Starting in September
- Poultry and Livestock - Biofilters for Odor Control
- Dairy - Web Based Seminar on Managing High Feed Prices
- Beef and Sheep Pasture Walk
- Start Scouting for Soybean Aphids Now
- Markets Drop
- Cover Crops for Vegetable Rotations
- Current Grain Market Information

Agronomic Crop Twilight Tour

Wednesday, August 20, 2008 6:00-8:00 p.m.
Carvel Research and Education Center
16483 County Seat Hwy, Georgetown, DE

Join us for a field crop wagon tour at the University of Delaware Carvel Research and Education Center in Georgetown. On the tour we will have the opportunity to view corn and soybean weed control research plots and to discuss other current field research. Specialists will be on hand to discuss current insect, disease, and weed issues.

We will meet in the picnic grove next to the Carvel Building. Refreshments and dessert will be served. Delaware pesticide re-certification credits will be available.

Cory Whaley, Extension Agent — Agriculture, UD, Sussex County

Dairy Webinar: Surviving High Feed Costs

Monday, August 18, 2008 8:00 p.m. EDT

Do high feed costs have you worried?

DAIREXNET can provide you with the information needed for making wise business decisions.

Topics:

- Strategies to Lock in Milk and Feed Prices
- Feeding Strategies with \$7, \$8, or \$9 Corn
- Alternative Feedstuffs for Corn and Soybean Meal

Each topic will be presented by a keynote speaker for ten minutes each with 30 minute Q&A at the end of the presentations.

For directions on how to log on visit:

www.extension.org/dairy+cattle

Small Flock Poultry Seminar

Saturday, August 16, 2008 9:00 a.m. - noon
University of Delaware Webb Livestock Farm
South Chapel Street, Newark, DE

Want to learn more about starting up a small poultry flock or get information on health and maintenance of your current small flock? Then come to our Small Flock Poultry Seminar. We'll have experts from the University of Delaware, Delaware State University and University of Maryland Cooperative Extension on hand to provide information and answers to your questions, plus local feed and supply stores to provide information on product availability.

This meeting is free and everyone interested in attending is welcome. To register, request more information or if you require special needs assistance for this meeting, please call our office in advance at (302) 831-2506.

Please register by August 12, by calling (302) 831-2506.

Beef and Sheep Pasture Walk

Wednesday, September 3 5:00 – 7:30 p.m.
University of Delaware Webb Livestock Farm
South Chapel Street, Newark, DE

Learn about pasture management and rotation for beef cattle and sheep production. Experts will be on hand from the University of Delaware and the Natural Resource Conservation Service (NRCS) to answer your questions. Nutrient Management and Pesticide credits will be available.

Please bring a folding chair.

This meeting is free and everyone interested in attending is welcome. To register, request more information or if you require special needs assistance for this meeting, please call our office in advance at (302) 831-2506.

Please register by August 29, by calling (302) 831-2506.

See you there!

*Anna Stoops, Agricultural Extension Agent
New Castle County Extension*

Farm Planning 101

Thursday, September 11, 2008 6:00 p.m.
DSU Smyrna Outreach and Research Center
884 Smyrna-Leipsic Rd, Smyrna, DE

Create a business plan for your farming enterprise. Includes record-keeping and tax information

Light refreshments served.

Please call (302) 857-6462 to register.

This workshop is part of the 2008 Small/ Beginning Farm Workshop Series held by Delaware State University. For complete information on the workshops planned, see the brochure at <http://www.rec.udel.edu/update08/announcements/smallfarmbrochure2008.pdf>

Classes for Initial Nutrient Management Certification Begin in September

If you apply nutrients to 10 or more acres of land or have 8 or more animal units (an animal unit is equal to 1000 lbs of live weight) you need to be certified through the Nutrient Management Program. Sessions for initial nutrient management certification (not continuing education credits) begin on September 3.

Visit the Nutrient Management Website: <http://ag.udel.edu/extension/NutriManage/sessionschedule.htm> or call Sydney Riggi at (302) 856-2585 x571 for more information.

Weather Summary

Carvel Research and Education Center Georgetown, DE

Week of August 7 to August 13, 2008

Readings Taken from Midnight to Midnight

Rainfall:

0.04 inch: August 10

Air Temperature:

Highs ranged from 86°F on August 7 to 78°F on August 11.

Lows ranged from 64°F on August 7 to 57°F on August 10.

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

*Weekly Crop Update is compiled and edited by
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