

Integrated Pest & Crop Management

Missouri New Herbicide/Label Update for 2009

By Kevin Bradley

I. Corn

Balance Flexx is a new herbicide from Bayer CropSciences that contains the same active ingredient as Balance Pro (isoxaflutole) but this new product contains a safener (cyprosulfamide) that allows it to be applied up to the V2 stage of growth in corn. Balance Flexx is a 2 lb/gallon formulation unlike the 4 lb/gallon Balance Pro formulation and can be applied from 3 to 6 fluid ounces per acre, depending on the soil type and application timing. In our initial research with this product, we have observed good control of a variety of common annual grass and broadleaf weeds like giant foxtail, common ragweed, and waterhemp, especially when tank-mixed with atrazine at either the preemergence or early postemergence timing.

All **Bicep** branded herbicides from Syngenta will now be able to be applied postemergence to corn up to 12 inches in height. The previous postemergence corn height restriction on all Bicep branded herbicides was 5 inches.

Cadet (fluthiacet-methyl) is a new product from FMC that is labeled for postemergence use in corn. Cadet is a PPO-inhibiting herbicide that was once also sold by Syngenta as Action. Cadet can be applied at 0.4 to 0.9 fluid ounces per acre to corn that is in the V2 stage of growth up to 48-inches in height or prior to tasseling, whichever comes first. A non-ionic surfactant or crop oil concentrate should be added to all Cadet applications.

Syngenta is expected to receive an updated label in 2009 that will allow postemergence applications of **Callisto** following preemergence applications of Lumax or Lexar. If Lumax or Lexar are applied at foundation rates, no changes in the soybean replant interval will be necessary. However, if full rates of Lumax or Lexar are applied preemergence and followed by a postemergence application of Callisto, the soybean replant interval will be extended to 18 months.

Corvus is a new prepackaged herbicide mixture from Bayer CropSciences that contains the Balance Flexx product described previously plus thien carbazon, a new ALS-inhibiting herbicide. Corvus is designed to be a one-pass preemergence herbicide that can be

applied from burndown up to the V2 growth stage in corn. Corvus can be applied at rates ranging from 3 2/3 to 5 2/3 fluid ounces per acre depending on soil type. Corvus should provide good control of a variety of annual grass and broadleaf weeds like giant foxtail, common ragweed, lambsquarters, nightshade, and waterhemp. Tank-mixing this product with atrazine will increase control of tougher weeds like cocklebur, giant ragweed, and morningglory.

Ignite 280 SL is a new formulation of glufosinate that will be registered for use on corn designated as LibertyLink. Ignite contains the same active ingredient as in Liberty but Ignite contains 2.34 lbs glufosinate/gallon unlike Liberty which contains 1.67 lbs/gallon. Ignite may be applied to LibertyLink corn hybrids from emergence through the V5 corn growth stage at 22 fluid ounces per acre. No more than two applications and 44 fluid ounces of Ignite can be applied per growing season. Ignite can be tank-mixed with a variety of other corn herbicides such as atrazine, Callisto, Distinct, Impact, Laudis, etc. In our research, we have no differences

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University of Missouri Extension Plant Diagnostic Clinic Report - 2008

By Simeon Wright

The Plant Diagnostic Clinic was established in 1965 and handles samples submitted for disease, insect, and weed identifications, as well as management recommendations. The clinic supports county extension specialists, but in recent years 65-75% of samples have been received directly from other agencies, businesses and private citizens throughout the state. Most clinic operations are handled by clinic staff, however other MU Division of Plant Science faculty assist when needed. Samples are diagnosed by visual observation or microscopic examination. When necessary, samples are also diagnosed by culturing plant tissues, limited ELISA serological testing, the BIOLOG bacterial identification system, and PCR. Use of ELISA and PCR testing methods is dependent on significant sample volume for economic reasons.

In 2008, we have had 575 samples, approximately the same number of sample submissions as 2007. Most samples were submitted through the mail while some were personally delivered to the clinic or submitted digitally by email. Samples were submitted from 79 Missouri counties. Approximately 80% of the samples were received between May and September.

In 2008, agronomic crop samples represented 27% of samples submitted to the clinic (fig. 1). Wheat, soybeans and corn were the primary agronomic crop samples we received (fig. 2). Sample submissions to the plant diagnostic clinic have often been examined by experienced agronomists, and consequently do not necessarily represent the most common plant problems occurring in the state. Significant numbers of the following agronomic samples were received and are described below:

Many of the wheat samples were submitted for virus testing, and tested positive using ELISA testing techniques for WSMV (wheat streak mosaic virus), and BYDV (barley yellow dwarf virus), with some SBWMV (soilborne wheat mosaic virus) and WSSMV (wheat spindle streak mosaic virus). We received several wheat samples with black chaff, powdery mildew, and scab (head blight). We had fewer samples with Septoria leaf blotch this year that we have the

previous few years. We confirmed *Cephalosporium stripe*, a disease that has not been submitted the previous few years, from a central Missouri sample.

Common soybean problems this year were downy mildew, sudden death syndrome, Septoria brown spot, *Cercospora* leaf blight/leaf spot and herbicide injury issues. Several samples were submitted for soybean rust confirmation, however none of the submitted samples were positive. Unlike the previous few years, very little frogeye leaf spot was submitted. Few samples were submitted with virus issues, although we did receive SMV (soybean mosaic) and TRSV (soybean budblight). Although we also had a decrease in samples submitted with root/lower stem rots, we did notice many of the submitted plants had poor root systems due to compacted soils, saturated soils etc.

Corn samples were frequently submitted with anthracnose (primarily early season foliar injury to seedlings). Other frequent submissions were Diplodia ear rot, gray leaf spot, and herbicide injuries. We also received a few samples with a *Fusarium* crown rot, a bacterial soft rot at the leaf collar, and an issue we believe is a disease lesion mimic, a genetic disorder that causes foliar lesions under certain environmental conditions, and that has been observed across several hybrids. (see <http://www.apsnet.org/online/feature/mimics/>)

We did not receive a lot of forage samples, however most of the alfalfa samples received had crown and root rot issues, including one with *Phytophthora*. Some forage grass samples were received with anthracnose and other minor foliar disease issues.

More information on the University of Missouri Plant Diagnostic Clinic, fees and services are available at: <http://soilplantlab.missouri.edu/plant/index.htm>. You can also contact the lab at plantclinic@missouri.edu or 573-882-3019 .

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Figure 1. Plant sample submissions in 2008

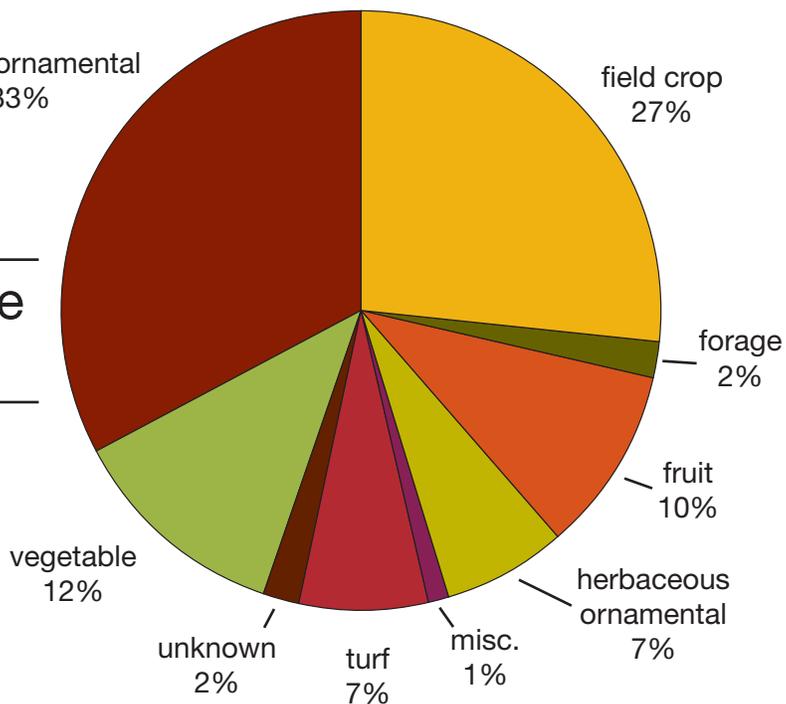
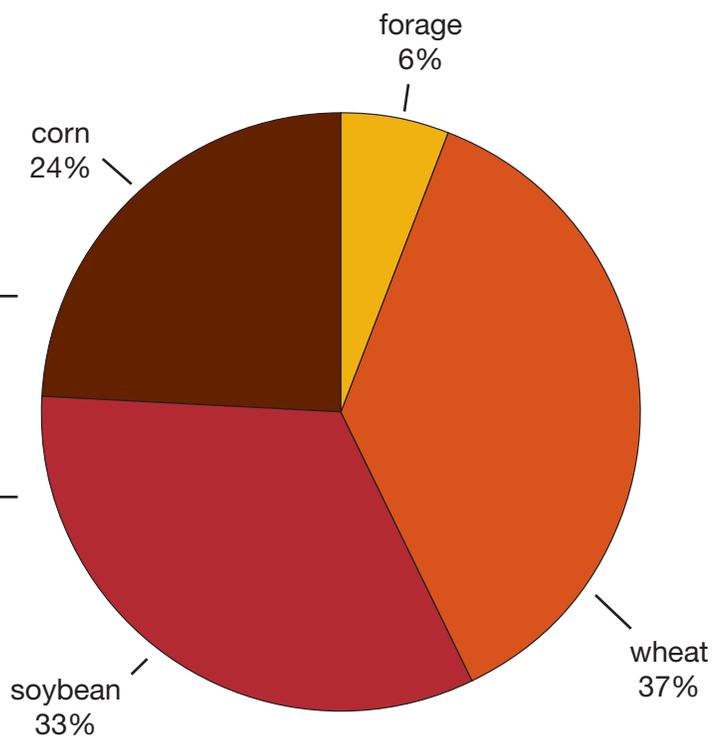


Figure 2. Diagnosis of agronomic samples submitted in 2008



between Ignite and Liberty in either weed control or crop safety.

Impact herbicide from AMVAC received a supplemental label for postemergence applications at 1 fluid ounce per acre in situations where weeds have grown beyond the size indicated on the label for the ½ or ¾ fluid ounce rate. In Missouri, we fall into a geography that will allow soybean planting the following season following the 1 fluid ounce Impact rate.

Valor SX is expected to receive a label for preplant applications 14 to 30 days prior to corn planting. This will be the first time that Valor will be able to be used in corn. In the past, Valor has only been registered for use in soybean. Valor SX will only be labeled in minimum or no-till corn at rates from 1 to 3 ounces per acre. Valor should be tank-mixed with glyphosate and/or 2,4-D or other burndown products when used in this manner. Valor provides some burndown and residual control of a variety of broadleaf weed species.

II. Soybean

Cadet (fluthiacet-methyl) is a new product from FMC that is labeled for postemergence use in soybean. Cadet is a PPO-inhibiting herbicide that was once also sold by Syngenta as Action. Cadet can be applied at 0.4 to 0.9 fluid ounces per acre to soybean that is in the V1 stage of growth to full flowering. A non-ionic surfactant or crop oil concentrate should be added to all Cadet applications.

In addition to preemergence use, **Dual II Magnum** will now be labeled for postemergence application in soybean up through the third trifoliate growth stage. This treatment will only provide control of unemerged weeds and is designed to provide residual control of later-emerging weeds when applied in combination with a postemergence application of glyphosate.

Flexstar GT is a new prepackaged mixture from Syngenta that contains fomesafen (Flexstar) and glyphosate. Flexstar GT is expected to receive a label for use in soybeans by the 2009 growing season. Flexstar GT will be formulated as a 3.29 SL and contains 2.63 pounds of glyphosate acid and 0.66 pounds of fomesafen per gallon of product. Flexstar GT will be labeled at rates ranging from 3 to 3.75 pints per acre in Missouri. At the 3 pint per acre rate, Flexstar GT will deliver 1 pound of glyphosate acid per acre and ¼ lb fomesafen. This product is intended to provide postemergence control of glyphosate-resistant weeds in soybean like waterhemp.

Limited supplies of **LibertyLink Soybeans** will be available for the first time during the 2009 growing season. LibertyLink soybeans are a new herbicide-resistant crop designed to withstand applications of **Ignite 280 SL**. Ignite 280 SL is a new formulation of glufosinate that will be

registered for use on soybeans designated as LibertyLink. Glufosinate is the same active ingredient as in Liberty. Ignite 280 SL contains 2.34 lbs glufosinate/gallon unlike Liberty which contains 1.67 lbs/gallon so use rates for Ignite will be different from those growers have become accustomed to with Liberty. The standard use rate of Ignite will be 22 fluid ounces per acre on LibertyLink soybean. No more than two applications and 44 fluid ounces of Ignite can be applied on LibertyLink soybeans in a single growing season. Applications of Ignite can be made from emergence up to but not including the bloom growth stage of soybean. Ignite is much more of a contact herbicide than glyphosate so application timing will be critical to the success of the LibertyLink soybean program. A preemergence herbicide followed by at least one in-crop application of Ignite has provided good weed control and excellent yields in our research over the past several seasons.

Prefix now has a postemergence label for use in soybeans. Prefix may be applied at 2 to 2 1/3 pints per acre from cracking up to the third trifoliate stage in soybean. Prefix will provide very little control of emerged weeds but will provide residual control of a variety of weeds that may emerge throughout the season like waterhemp. In Roundup Ready soybean, Prefix can be tank-mixed with a glyphosate product to control weeds that are present at the time of the application. Crop oil concentrate should not be added as a spray adjuvant as this will increase the likelihood of crop injury.

Spartan Advance is a new prepackaged herbicide mix from FMC that contains sulfentrazone plus glyphosate. Spartan Advance is primarily targeted for the sunflower market but also has a label for use in soybeans. It can be applied from 32 to 85 fluid ounces per acre, depending on the soil type, as a preplant or preemergence treatment in soybean. It may also be applied at reduced or "foundation" rates of 23 to 36 fluid ounces per acre in Roundup Ready soybeans where a postemergence application of glyphosate is planned. The sulfentrazone in this premix provides good control of a variety of broadleaf weeds, most notably waterhemp and lambsquarters.

III. Grain Sorghum

Degree Xtra is now labeled for use in grain sorghum as a preplant, preemergence, or postemergence application before the crop exceeds 11-inches in height. Degree Xtra can be applied at 2 to 3.7 quarts per acre, depending on soil type.

Dual II Magnum is expected to be labeled for postemergence use in grain sorghum by the 2009 growing season. Dual II Magnum can be applied postemergence up to 75 days prior to harvest.

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Missouri New Herbicide/Label Update for 2009 *continued from page 126*

It is expected that Syngenta will receive a full federal label for preplant or preemergence applications of **Lumax** and **Lexar** on grain sorghum in 2009. Kansas and Nebraska have had a supplemental label for this use pattern in the past, which will now be expanded to include all other states included on the Lumax and Lexar labels. Applications of either herbicide can be made from 14 days before planting up through planting but prior to sorghum emergence. The maximum rate of Lumax that can be applied will be 2.5 quarts per acre while the maximum rate of Lexar will be 3 quarts per acre. In our evaluations of this new use pattern in 2008 field research, we did not observe any significant injury to grain sorghum as a result of a preplant Lumax or Lexar application. However, the closer these applications are made to planting, the greater the risk of grain sorghum injury with these herbicides.

IV. Burndown/Fallow

Distinct has received a label for preplant applications prior to planting cotton or soybeans. Distinct can be applied at 2 to 4 ounces per acre to control broadleaf weeds prior to planting. Following an application of Distinct, a waiting interval of 30 days and a minimum accumulation of 1-inch of rainfall is required before cotton or soybeans may be planted.

Ignite 280SL is a new formulation of glufosinate from Bayer CropSciences that will be labeled for use as a burndown treatment prior to planting or prior to emergence of any conventional or transgenic variety of corn or soybean. Ignite

contains glufosinate, the same active ingredient as in Liberty, but is a 2.34 lb/gallon formulation rather than the 1.67 lb/gallon Liberty formulation. In burndown applications, Ignite must be applied at a minimum of 29 fluid ounces per acre but can be applied at rates up to 36 fluid ounces per acre if necessary. In LibertyLink corn or soybeans, if Ignite has been applied as a burndown treatment, no additional applications of Ignite may be made in-crop during the growing season.

V. Grass Pastures and Hay

Chaparral is a new herbicide from Dow AgroSciences that will have a limited launch in Missouri in 2009. Chaparral is a prepackaged mix of Milestone (aminopyralid) plus metsulfuron (Cimarron, Ally, Escort, others). Chaparral will be a 61.95% extruded granule product that contains 85% aminopyralid and 15% metsulfuron. The maximum rate of Chaparral will be 3.3 ounces of product per acre but it is unlikely that this rate will be suitable for most applications in Missouri as this rate provides the equivalent of 7 fluid ounces of Milestone per acre and 0.5 ounces of Cimarron per acre. This rate of Cimarron can cause significant injury to fescue, especially when applied in the spring. For general weed control, Chaparral will be labeled at 2 to 2.5 ounces per acre.

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NEW!

Management of Glyphosate-resistant Waterhemp in Corn and Soybean (IPM 1030)



This publication is a short, color guide sheet that contains information helpful to farmers, retailers, and crop consultants who are having problems with glyphosate-resistant waterhemp in either corn or soybean. The information and recommendations within this publication are based on three years of field research conducted on glyphosate- and multiple-resistant waterhemp populations within Missouri.

More information about IPM 1030 as well as a free PDF version of the publication available online at: <http://extension.missouri.edu/explorepdf/agguides/pests/ipm1030.pdf>.

Now available for purchase through **MU Extension**

Nutrient Management Courses Scheduled for 2009

By John Lory

Two nutrient management courses have been scheduled for early 2009: the "Nutrient Management Planning Course" and the "Advanced Nutrient Management Course."

These courses provide training and continuing education credits for Certified Crop Advisors (CCAs), Concentrated Animal Feeding Operation (CAFO) Operators and Wastewater Operators. They also provide training for agency personnel and anyone else with an interest in managing nutrients on farms, particularly farms using animal manure as a fertilizer.

The "Nutrient Management Planning course" is a two-part course.

Part 1: The classroom session will be March 10 to March 12, 2009. Topics covered in this part of the course include current NRCS and regulatory policies, water quality management, nutrient management calculations such as plant available nitrogen in manure, phosphorus-based management and manure economics.

Part 2: The calculation/field session is held twice (attendees chose one) either April 13-15, 2009 or April 15-17, 2009. These sessions include a field trip to the MU Dairy, hands-on calculations related to nutrient management and active discussion sessions.

In the past this course has been approved for 6.0 Soil and Water and 22.0 Nutrient Management continuing education units (CEUs), for 34.5 CEU's for CAFO Operators and for 29.5 CEUs for Wastewater Operator CEUs. It is highly recommended for anyone who plans to write nutrient management plans for animal feeding operations in Missouri.

The cost of the two-part course is \$375. All sessions will be held at the Missouri Cattlemen's Building in Columbia, MO.

The "Advanced Nutrient Management Course" is a new course that will be held February 25-26, 2009. The focus of this year's course will be "Nitrogen Management in Forage and Row Crop Systems." This session will provide detailed presentations and discussions on how to optimize nitrogen management particularly on farms using manure as a nitrogen source. Presenters will include Dr. Michael Russelle, a nationally recognized scientist working on nitrogen management in forage systems.

We are requesting approval for 6.5 Nutrient Management, 5.0 Soil and Water and 0.5 Crop Management CEUs for CCAs. We are requesting 12.0 CAFO Operator and 12.0 Wastewater Operator CEU's. The session will be held in Columbia, MO (exact location to be determined). The cost for the advanced course will be \$185 and includes the cost of two lunches.

Pre-registration is required for both courses. To register contact Shane Ferguson (573-884-6311; FergusonSS@missouri.edu). For more information about the course contact John Lory (573-884-7815; LoryJ@missouri.edu). More details about the courses including agendas and a speaker list are available on line at <http://nmplanner.missouri.edu/training/>.

Both courses are sponsored by the University of Missouri Commercial Agriculture Program, University of Missouri Extension and the Natural Resource Conservation Service.

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2009 Missouri Pest Management Guide: Corn, Grain Sorghum, Soybean, Winter Wheat

Available now! This annual publication provides current recommendations for the control of the most problematic weeds, insects and diseases encountered in Missouri corn, grain sorghum, soybean and winter wheat cropping systems. It contains the latest label updates, name changes and new herbicide, insecticide, or fungicide active ingredients in the marketplace.

To order, visit <http://extension.missouri.edu/explore/manuals/m00171.htm>

For more information, contact Laura Sweets at (573) 884-7307

(M171)

COMMERCIAL PESTICIDE APPLICATOR TRAINING

COMING JANUARY 2009

Pesticide applicator training helps reduce the harmful effects of improper pesticide use. The University of Missouri Extension Commercial Pesticide Program provides educational outreach for individuals who wish to become licensed commercial pesticide applicators. Licensed applicators must pass an exam and participate in continuing education courses on environmentally sound uses of pesticides.

For more information on training dates and registration, visit us at <http://ppp.missouri.edu/pat>

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Weather Data for the Week Ending December 15, 2008

By Pat Guinan

Station	County	Weekly Temperature (oF)						Monthly Precipitation (in.)		Growing Degree Days‡	
		Avg. Max.	Avg. Min.	Extreme High	Extreme Low	Mean	Departure from long term avg.	Sep 1-22-Sep	Departure from long term avg.	Accumulated Since Apr. 1	Departure from long term avg.
Corning	Atchison	40	15	60	-2	27	-3	0.08	-0.67	3539	+153
St. Joseph	Buchanan	41	16	58	0	28	-4	0.03	-0.97	3353	-89
Brunswick	Carroll	40	17	58	4	29	-3	0.67	-0.37	3425	-71
Albany	Gentry	40	15	59	0	27	-4	0.07	-0.84	3268	-120
Auxvasse	Audrain	42	20	61	6	32	-1	0.84	-0.52	3373	-161
Vandalia	Audrain	42	20	60	7	32	0	0.58	-0.78	*	*
Columbia-Jefferson Farm	Boone	43	20	62	6	32	-2	0.73	-0.50	*	*
Columbia-South Farms	Boone	43	20	61	6	32	-2	0.68	-0.55	3471	-221
Williamsburg	Callaway	42	21	59	8	33	0	0.72	-0.74	3396	-94
Novelty	Knox	40	16	62	3	29	-2	0.65	-0.59	3120	-314
Linneus	Linn	41	16	58	2	29	-2	0.45	-0.53	3221	-112
Monroe City	Monroe	41	19	61	5	31	-1	0.96	-0.34	3262	-234
Versailles	Morgan	45	21	65	7	33	-3	0.73	-0.54	3664	-109
Green Ridge	Pettis	44	19	64	6	32	-2	0.70	-0.50	3532	+75
Lamar	Barton	46	23	68	10	34	-3	0.52	-1.02	3762	-205
Cook Station	Crawford	45	23	60	11	35	-2	0.67	-1.02	3414	-385
Round Spring	Shannon	46	24	59	15	36	0	1.65	+0.07	3415	-192
Mountain Grove	Wright	42	23	56	12	33	-2	1.15	-0.95	3423	-187
Delta	Cape Girardeau	48	30	59	19	37	-1	1.75	-0.23	3880	-301
Cardwell	Dunklin	51	32	61	22	41	+1	2.34	+0.13	4377	-169
Clarkton	Dunklin	50	32	61	21	39	0	3.24	+1.36	4242	-248
Glennonville	Dunklin	51	33	62	21	40	0	2.03	+0.19	4273	-186
Charleston	Mississippi	50	32	61	21	39	0	2.56	+0.27	4162	+3
Portageville-Delta Center	Pemiscot	50	33	61	22	40	0	2.62	+0.40	4494	+3
Portageville-Lee Farm	Pemiscot	50	33	61	22	40	0	2.73	+0.50	4473	+15
Steele	Pemiscot	51	33	62	23	41	0	3.30	+0.77	4547	+52

* Complete data not available for report

‡Growing degree days are calculated by subtracting a 50 degree (Fahrenheit) base temperature from the average daily temperature. Thus, if the average temperature for the day is 75 degrees, then 25 growing degree days will have been accumulated.

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