

Field Painting Strategies by Mark Hall

Adapted from a presentation by Mike Andresen, CSFM, Iowa State University, January 26, 2004 at the 70th Annual Iowa Turfgrass Conference and Trade Show, Sports Turf Workshop, personal experience and tips from customers.

This tutorial will help sports field specialists understand the elements of field presentation for maximum effectiveness. This material is geared toward marking a NCAA Division I college football field although much of the material can be used for any sports field marking operation. Also we'll highlight painting strategies for soccer fields. This field marking tutorial covers many field maintenance areas. Topics covered are viewing perspectives, supplies and precautions, season preparations, scheduling activities, field marking, changes during the season, and resources used.

Understand Your Customer

A couple key elements of field preparation include starting out with an outstanding turf surface (i.e., healthy grass and a level surface), exceptional application of paint, sharp graphic design including hierarchy of lines, visual balance, font, and scale. When preparing to paint the field areas to consider are who is the customer, input from athletes, fans in the stands (home and away?), whether there will be TV coverage, when is the event, day or night, how close are the fans to the field and what is their viewing angle? For example, at a high school football field with a high crown and low bleachers you'll have viewing problems to the opposite side of the field. For a mid field stencil you may decide to put the majority of the emblem on the home side half of the field.

Paint

Acrylic latex paint is always an important consideration in field marking operations. In most cases you should use water-based paint specific

for turf usage. The paint should have a flat finish. White will be the predominate color, except in snow conditions where blue and red have been used. Titanium oxide is a common ingredient in paint that acts as a brightener for white. Also the grinding of the solids in the paint will have an effect on the mixing and striping operations. The finer the grind (more expensive paint) the less settling will occur over time. Don't over paint when it is unnecessary. Consider current line conditions and the weather to vary your paint ratio to water. Put the paint on the leaf tissue (not on the ground); this may require you to reduce the pressure of the paint striper. Although most latex paint is labeled to cover 300 square feet our experience with diluted field paint indicates that 5-gallons of diluted paint will cover 1,000 linear feet at a 4-inch width. Thus for a standard football field with 5 yard lines and 4 sets of hash marks (approximately 4,600 linear feet) you will use close to 25 gallons.

Growth Regulators

More turf specialists are adding growth regulators to their striping operations. There are several beneficial affects from this management practice. The grass will grow slower so less paint will be mowed from lines thus less marking and grass will become denser with more blade area for painting. Several practitioners recommend ½ oz. of Primo (½ - 1 oz. of Embark) growth regulator per gallon of diluted paint for the best results. Be careful and not double spray your lines. Also the experts recommend using the growth regulator every 3 weeks of striping (on the 4th week). Iowa State University created a turf grass test plot to compare the results of growth regulators. Check out the results of their study at (<http://www.athleticfieldmarker.com/FieldPaintTests.html>).

Precautions

There are several precautions you should be aware of in your field marking operations. These aren't all inclusive. It is highly recommended that the first time all lines, hash marks, and sideline number stencils are lined up using a string that runs the length or width of the field. Sideline hash marks and yard lines, except for the goal line, must come no closer than 4 inches to the sideline. For marking the field the first time of the season we recommend painting the sidelines first so you have a better visual offset when painting the yard lines and hash marks. Here again using a string running the length of the field offset by 4 inches from the sideline will help prevent getting too close. Ensure you've properly aligned the 4-inch x 4-inch pylons so they are squared up on the goal lines and sidelines. The pylons should not be inside the line markings. When handling bulk paint we recommend having a designated area, off the field area preferred, where you cover an area (cardboard or plywood) so paint spills don't distract from your planned painting. Stencils have a tendency to cause heat damage to grass if left rolled out too long. Try and avoid the hottest part of the day when using plastic field stencils. Always use caution when applying paint, less is better.

Season Preparations

Prior to your first sporting event there are several activities you should complete. You want all the problems with equipment and supplies resolved prior to the week of your first event. String out all lines, hash marks and sideline numbers in anticipation of scrimmages and rehearsals/walk-through. Depending on staff resources try to begin painting logos, use one day to layout the center logo, a day to paint the border and details of the center logo, a day for the layout of each other logo, one day to paint all colors on smaller logos, and one day to paint all white with a basecoat. Planning these activities will minimize the switching of colors used in your field marking equipment as well as providing sufficient time to resolve problems with equipment, paint, tools, and weather.

Early season game week schedule has its own special requirements. Your schedule must be flexible to allow for rain and team usage (possible marching band usage as well). If at all possible mow the entire field ¼ - ½ inch lower than the normal on your paint day. Mowing early in the day allows for the grass to dry prior to field painting. Paint the entire field with logos on Thursday (two days before the event) or when schedule allows (this is assuming a Saturday afternoon/evening game).

Game Week Activities

Game week scheduling for the mid-season to finish requires more flexibility due to weather (northern areas contend with more rain, snow, frost, and less daylight) and team usage. Three days before the event mow the field at 1-½ inches. The end zones and three-foot border are mowed at 1-¼ inches. Paint the three-foot border, restraining line, and team areas. Paint blue, red and yellow (colors other than white) in your logos.

Two days before the game (Thursday for a Saturday game) mow the field at 1-½ inches. Do not mow the end zones. If there is TV coverage ensure all out of bounds areas are mowed. Paint all lines, hashes, and numbers. Paint all white in logos and don't irrigate that evening.

The day before the game, Friday for a Saturday game, finish any painting as early as possible. This is needed to support team walk-thru sessions during the afternoon and TV operations setup. Mow immediately after walk-thru sessions. You may need to raise the mower height. Irrigate as needed but be aware of TV coverage requirements and start time. Turn off your water at the source to avoid any possible problems.

On game day (Saturday) mow the three-foot border, mow or roll end zones or raise the mowing height. Mow the field and pick up the reels at the 3-foot border. Then mow the first two strips of sideline and out-of-bounds (mower

turnaround from earlier phase). Blow the sideline areas if necessary.

Tools

Tools are an important resource when conducting field painting operations. Varying lengths of string should be used for field marking. We recommend a #21 nylon twine (or braided #18) to prevent early failure from molding because of wet string winding. Two to four lengths of 400 foot twine (alignment for side line, hash marks, and number stencils) as well as four 200-foot strings for yardage lines should be considered. This allows for movement of string with one or two people while the paint striping is taking place. You should have each length of string on its own spool. Use at least six inch colored nails (orange, pink or white) so they are not easily lost (safety is the utmost). Cleanup spill areas when they occur. Have a bucket of water and rags available on site. As mentioned before use splash boards, 4 foot x 4 foot plywood/foam board/signboard to prevent spillage.

Paint Mixing

Your paint mixing facility is crucial to successful field paint operations. Here are a list of requirements: an adequate water source, a drained pad or pit (verify where these drain to, even though acrylic latex paint is not hazardous), measuring jars/buckets for dilution (especially critical for growth regulators), electric/cordless drill with paint mixing bit/paddle, 5-gallon buckets, screened funnel, wire brushes and scouring pads. The screen funnel should be used when pouring the diluted paint into the paint canister/tank that is used on the field marker. We recommend using a 30-mesh screen to catch solids before then get into your field marking equipment.

Field Striping Areas

The three foot border around the football field is an excellent method of “framing” your field so it stands out. This can be accomplished using a

spray wand, the standard line marking equipment, or a block-out area accessory like the Paint Boom accessory from Tru Mark Athletic Field Marker (<http://www.athleticfieldmarker.com/Products/E-100PaintBoom.html>).

The yard lines require a very stable field marking striper and an experienced operator. The line striper should generate a very crisp and uniform line with no dribble after shutting off. If multiple colors are used then they should be applied prior to using white paint (20 and 50 yard and goal lines). Ensure when stringing your field and striping with your field marker that you are aligned at the edge of the planned paint line. (Normally you are offset 2 inches from the center of the line. Or for a border you are aligned to strip on the “outside” of the string that is the field boundary. Unlike for baseball where the foul line is inbound, for football the sideline is out-of-bounds.) There is many different field marking equipment available. You should consider your resource requirements to include personnel when selecting the proper mix of field marking equipment.

When striping your hash marks that run along the center section of the field we recommend pulling a string the length of the field to ensure proper alignment. If you need to know the football field marking requirements please check the Tru Mark information at (<http://www.athleticfieldmarker.com/footballfield.html>) (for soccer fields at <http://www.athleticfieldmarker.com/soccerfield.html>). There are several tools that are available in the market place for striping the hash marks to including the “tick” marks that bisect the yard lines. Stencils are commonly used for hash marks. Tru Mark Athletic Field Marker features the Model E-100 Paint Boom accessory that is a time saver when applying the 4-inch x 24-inch hash mark (<http://www.athleticfieldmarker.com/Products/E-100PaintBoom.html>).

Again pulling a string the length of the field is recommended the first time you paint the sideline

numbers. The tops of the numbers should all be the same distance from the sideline (9 yards for college football). Make sure you have even spacing from the yardage line to the edge of the number.

Painting Logos

Painting logos can be an art form and can greatly enhance the overall field appearance. You can make your own logo or purchase a commercial manufactured stencil. In both cases you need an image so it can be used for enlargement. For a do-it-yourself logo you place an enlarged logo on a desk and overlay with graph paper to create a grid. You then enlarge your grid to the size needed on the field using strings (for example, 1 inch equals 3 feet). Use the graph paper as a guide and transfer the logo onto your field grid. Annotate the different distances, top to bottom, side to side, and internal and diagonal distances. You will use these distances to create hash mark outlines using an aerosol can or bulk paint spray wand. Contact Tru Mark Athletic Field Marker for a price quote on a custom field stencil (1-800-553-6275).

For end zone stencils ensure you measure distances from goal line and end line as well as sidelines, especially if multiple stencils are being painted. Start with the center stencil for the end zone and ensure you have the logo squared in the end zone by checking the north/south and east/west corners. For end zone letters ensure you space out each letter from the center line as some letters will have slightly different widths. Depending on the style of stencil being used always mark the borders and any distinguishing lines. If using a “dot” stencil style connect the dots after stencil is removed. Always have line art in hand to prevent accidents. Paint the borders first, then the details, using “bulk” paint next. When using a plastic stencil, paint fast so the stencil can be removed as quickly as possible. As mentioned earlier plastic stencils can cause heat damage to grass if left rolled out to long. Try and use white paint as the last color when painting the logos.

Scenarios

There are several scenarios to consider when painting operations are affected by climatic conditions, such as freezing temperatures and wet grass. During freezing temperatures consider adding ½ ounce of alcohol per gallon of diluted paint. If possible use warm water when mixing the paint. Unfortunately using higher pressures increases the volume of paint applied. When you expect approaching rains or wet grass use less pressure, which generates less volume of output. Blow-dry the lines if feasible or switch to aerosol. We have found it is better to paint dry grass with a rain that comes within 30 minutes after painting versus painting wet grass with a rain 1-2 hours later.

Resources Used

**Game Day Paint Usage
(NCAA Division I Football, ISU)**

Location or Color	Paint Used (gal)	Mixed Paint at 1:1
3 Foot Border Out of Bounds	27.5	55
Yard lines	12.5	25
White	25	50
Red	10	20
Blue	15	30
Gold	5	10

**Football Field Painting Man Hours
(NCAA Division I Football, ISU)**

Logos	8 to 12
Field	16 to 20
Practice	8 to 12
Soccer	4 to 6