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Collection of Dye Card Samples		
Revision: #10	Replaces: 2/19/14 version	Effective: 9/3/19

1. Purpose and Scope: Dye cards are used to measure the deposition of a sprayed pesticide on a flat surface. Dye cards can be read visually for a qualitative determination of deposition, submitted to the laboratory for a quantitative analysis, or both. This SOP describes how to handle, place, collect, read, and store dye card samples. Any instructions on dye card collection and documentation found in the Environmental Monitoring Plan (EMP) for the Program under study supersedes instructions contained in this SOP.

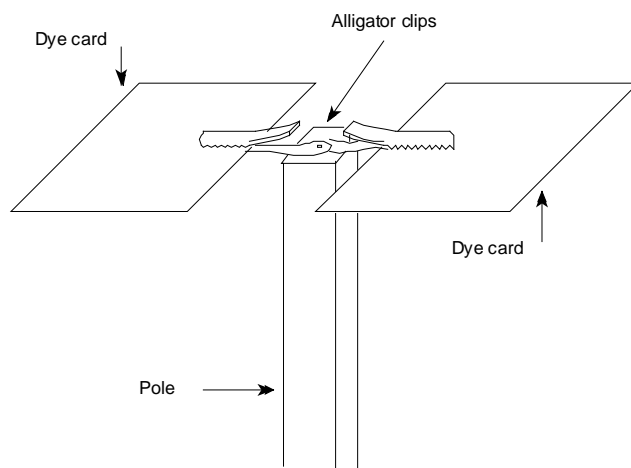
2. Supplies Required: To request sampling supplies, contact the monitoring supplies coordinators, Lisa Mosser (305) 278 4902, or Richard King (305) 278 2905, Center for Plant Health Science and Technology, Miami, or email the Environmental Monitoring Supplies Checklist to lisa.k.mosser@usda.gov or richard.a.king@usda.gov.

- 2.1 oil sensitive or water sensitive dye cards, as appropriate for the pesticide being monitored (request individually packaged in resealable plastic bags by CPHST)
- 2.2 poles - 5 feet long (e.g. bamboo reeds, dowels, or 1"x 1" wood stakes and some tool to drive the poles into the ground)
- 2.3 clips (paper or alligator)
- 2.4 tacks (to attach clips to top of poles)
- 2.5 sanitary wipes
- 2.6 resealable plastic bags (4"x 4" and 12"x 12")
- 2.7 field log book
- 2.8 ice chest with dry, bagged regular, or blue ice (obtain locally)
- 2.9 environmental monitoring forms (APHIS Form 2060)
- 2.10 indelible marker
- 2.11 wind gauge, compass, and thermometer
- 2.12 disposable gloves

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3. Placement of Dye Cards:

- 3.1 Determine the appropriate number and location of sample sites based on program specific selection criteria. At each sampling location, drive a pole into the ground to a sufficient depth to assure that it will not fall over during monitoring.
- 3.2 Affix two clips to the top of the pole using tacks, or bend one end of a paper clip wire 90° and force the wire into the top of the pole (see figure below).
- 3.3 Open the resealable plastic bag containing a dye card. Hold the card with the plastic bag so that you do not directly touch the card with your hands. Place the dye card in a clip on the pole. The dye card should be oriented horizontally with the sensitive surface facing up. Remove the resealable plastic bag and store it at a remote location, away from the treatment site. Always be careful not to touch the dye cards with anything that might have been in contact with Program chemicals (e.g. fingers, gloves, tools).
- 3.4 Place a second dye card in the other clip as illustrated, if necessary.
- 3.5 Repeat steps 3.1-3.4 for every pole in the dye card array.
- 3.6 Expose the dye cards to the environment for the time specified in the EMP. Record the time the cards were placed at the site.



4. Collecting Exposed Dye Cards:

- 4.1 Using the indelible marker, label the resealable plastic bag with the code that indicating the dye card's location in the array. **DO NOT WRITE DIRECTLY ON THE DYE CARD.**

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- 4.2 While the card is still on the pole, slide the resealable plastic bag in which the card was shipped back over the card. Once the dye card is inside the resealable plastic bag, unclip it from the pole and seal the bag. Use care not to touch the card during this process.
- 4.3 Examine the card for any visible spotting. Record the number of spots on the card in the field log book or on the 2060 form. If there are too many spots to count, record “numerous spots”.
- 4.4 Record the time that the dye card was collected. Repeat steps 4.1-4.3 for the other card on the pole and the other cards in the sampling array.
- 4.5 The bagged dye cards should all be placed into a 12"x 12" resealable bag and placed in the cold ice chest for transport to a freezer for storage until shipping.
- 4.6 Decontaminate all clips (if they are to be used again) by wiping down with fresh sanitary wipes.

5. Documentation:

- 5.1 Record all observations in the field log book (see SOP EM-12, *Using a Field Log Book*). Record the air temperature and humidity during treatment, and the wind speed and direction before, during, and after treatment (see SOP EM-13, *Taking Measurements for the APHIS Form 2060*). Include a site sketch that shows: the dye card sampling array, its relation to the treatment site and any sensitive site(s), an approximate scale, and a North arrow. An annotated aerial photograph or topographical map of the site may be substituted for, or attached to, the site sketch. Describe any vegetation between the treatment site and the sample array, or any factors that might influence the amount of pesticide being deposited on the dye cards.
- 5.2 Complete an APHIS Form 2060 for each dye card. Include the site sketch on at least one of the 2060 forms of each sample array. Record the results of the visual determination of spotting in the ‘Remarks’ block.
- 5.3 Retain the pink copy of Form 2060 for your records and distribute the remaining copies as specified in the EMP.

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6. Packaging and Shipping:

- 6.1 Package and ship the dye card samples as described in SOP EM-17, *Packaging and Shipping of Samples*.