FIELD ID NO: _____

IR-4 FIELD DATA BOOK

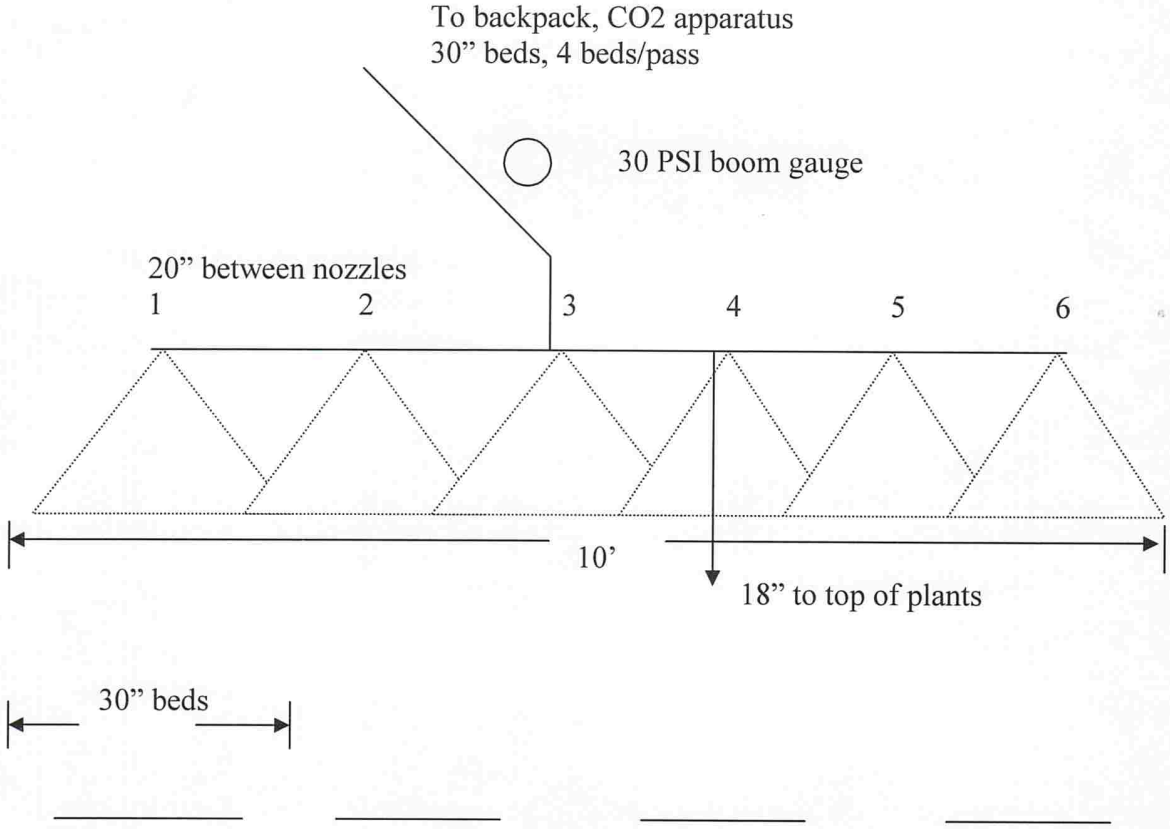
PART 6. APPLICATION RECORDS

B. DIAGRAM OF APPLICATION EQUIPMENT

EQUIPMENT USED FOR **APPLICATION NUMBER(S)** _____

*INSTRUCTIONS: Complete a separate form for **each piece** of test substance application equipment used in the trial. Sketch a diagram and/or provide clear photograph of application equipment. Include the relative location and size of the target crop and the nozzle/hopper outlet placement and application pattern in relation to crop, in the sketch or photograph. In addition, on the sketch or photograph assign each nozzle or hopper outlet a unique number.*

6 nozzle backpack sprayer diagram



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PART 6 PAGE ___ Trial Year 2012

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IR-4 FIELD DATA BOOK

PART 6. APPLICATION RECORDS

B. DIAGRAM OF APPLICATION EQUIPMENT

EQUIPMENT USED FOR **APPLICATION NUMBER(S)** _____

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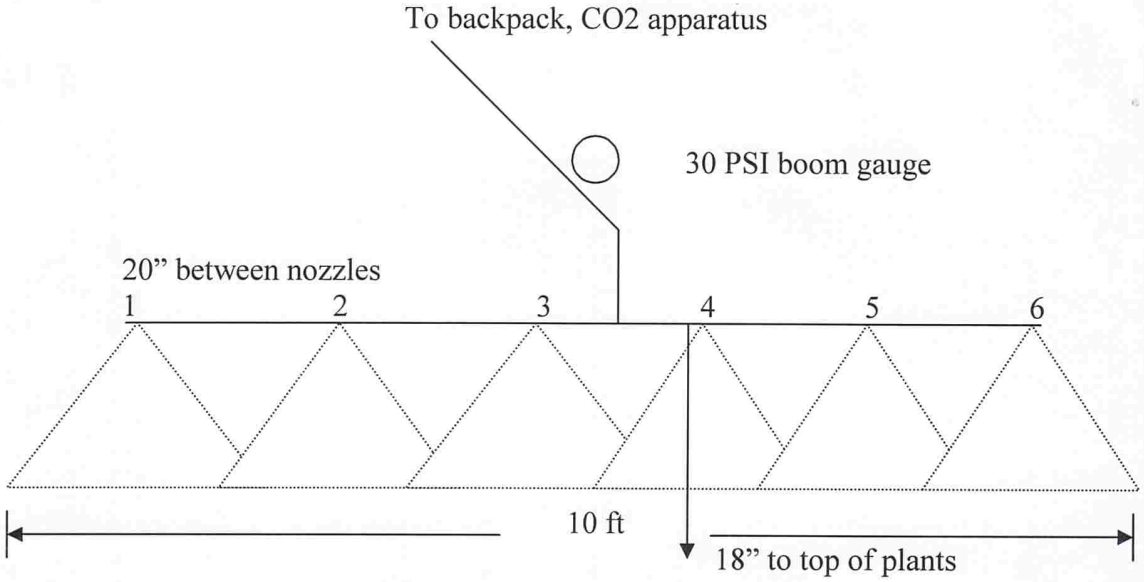
6 nozzle backpack sprayer diagram



Soil level _____ _____

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IR-4 FIELD DATA BOOK

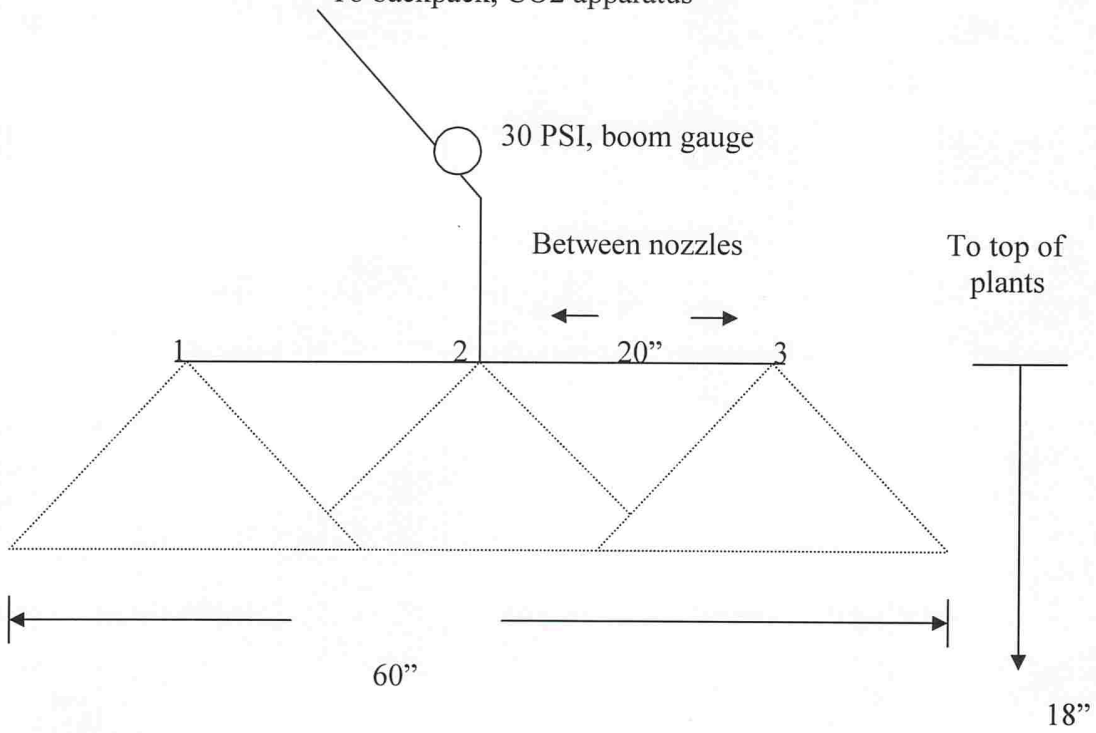
PART 6. APPLICATION RECORDS

B. DIAGRAM OF APPLICATION EQUIPMENT

EQUIPMENT USED FOR **APPLICATION NUMBER(S)** _____

*INSTRUCTIONS: Complete a separate form for **each piece** of test substance application equipment used in the trial. Sketch a diagram and/or provide clear photograph of application equipment. Include the relative location and size of the target crop and the nozzle/hopper outlet placement and application pattern in relation to crop, in the sketch or photograph. In addition, on the sketch or photograph assign each nozzle or hopper outlet a unique number.*

3 nozzle, 60" Backpack sprayer diagram:



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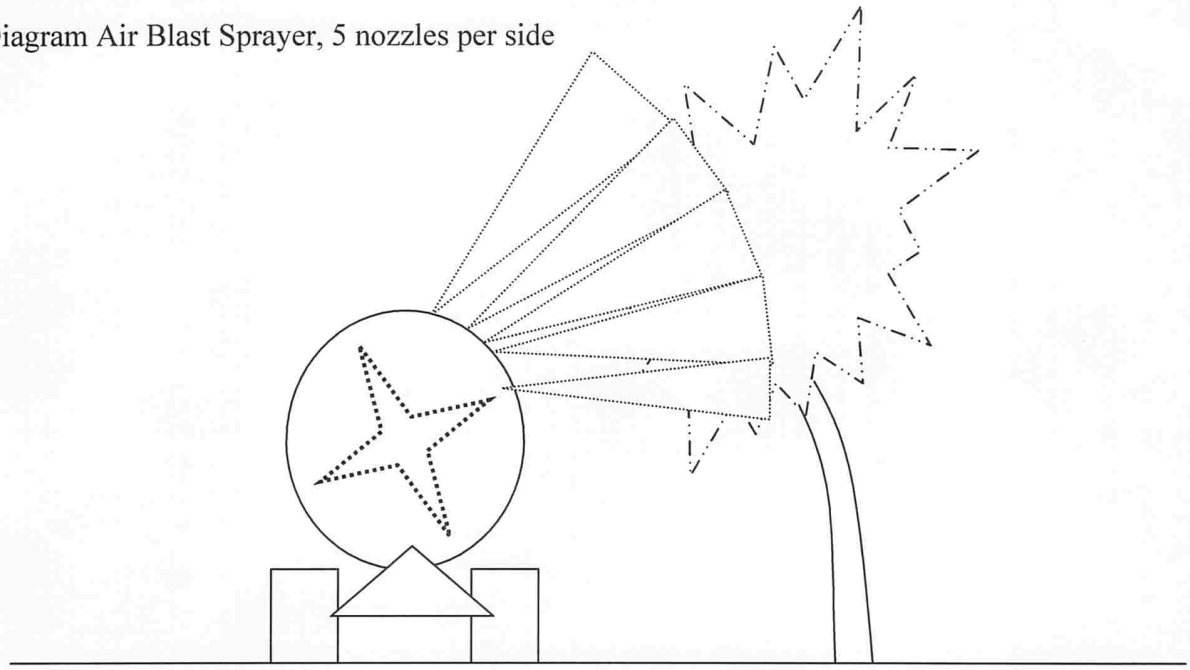
PART 6. APPLICATION RECORDS -AIRBLAST SPRAYER

B. DIAGRAM OF APPLICATION EQUIPMENT

EQUIPMENT USED FOR **APPLICATION NUMBER(S)** _____

*INSTRUCTIONS: Complete a separate form for **each piece** of test substance application equipment used in the trial. Sketch a diagram and/or provide clear photograph of application equipment. Include the relative location and size of the target crop and the nozzle outlet placement and application pattern in relation to crop, in the sketch or photograph. In addition, on the sketch or photograph assign each nozzle a unique number. Note the side that is open or if both sides are being used.*

Diagram Air Blast Sprayer, 5 nozzles per side



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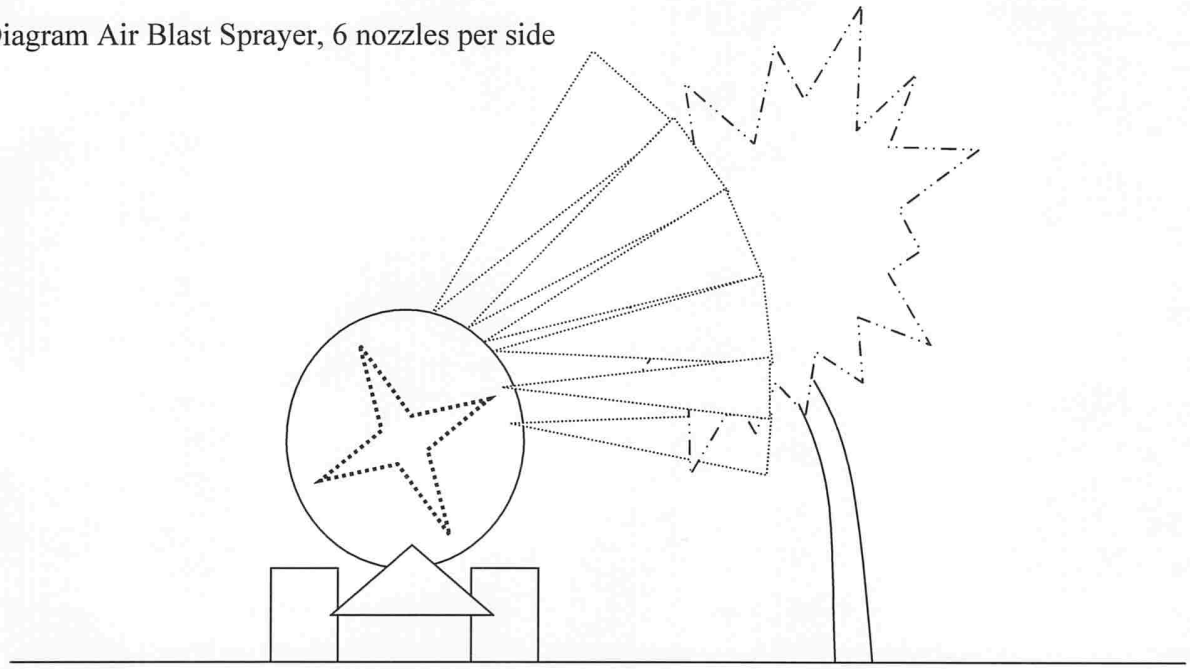
PART 6. APPLICATION RECORDS -AIRBLAST SPRAYER

B. DIAGRAM OF APPLICATION EQUIPMENT

EQUIPMENT USED FOR **APPLICATION NUMBER(S)** _____

*INSTRUCTIONS: Complete a separate form for **each piece** of test substance application equipment used in the trial. Sketch a diagram and/or provide clear photograph of application equipment. Include the relative location and size of the target crop and the nozzle outlet placement and application pattern in relation to crop, in the sketch or photograph. In addition, on the sketch or photograph assign each nozzle a unique number. Note the side that is open or if both sides are being used.*

Diagram Air Blast Sprayer, 6 nozzles per side



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IR-4 FIELD DATA BOOK

PART 6. APPLICATION RECORDS

C. DISCHARGE CALIBRATION FOR **APPLICATION NUMBER** ____

INSTRUCTIONS: Complete a copy of this form (PHOTOCOPY IF NECESSARY) for additional times when a complete calibration or calibration-recheck of application equipment is required.

EQUIPMENT IDENTIFIER_____

DISCHARGE CALIBRATION DATE_____ PERFORMED BY_____ *(INITIALS)*

APPROXIMATE TIME OF DAY THAT THE CALIBRATION WAS PERFORMED_____

PRESSURE OR OTHER STANDARD SETTING UTILIZED IN CALIBRATION_____

DISCHARGE UNITS MEASURED *(e.g. ml, oz., grams)* _____

INSTRUMENT USED TO MEASURE WATER *(e.g. 100 ml graduated cylinder)* _____

BRIEFLY DESCRIBE PROCEDURE USED TO CHECK DISCHARGE CALIBRATION _____

_____

_____

DISCHARGE CALIBRATION *Record time applicator is allowed to discharge. Collect output from each nozzle or hopper. Record this value in "RUN" Row 1 under the appropriate outlet. Calculate the total and average discharge for all the nozzles/hoppers. Entry prompts have been provided for 2 additional discharge calibration runs. Calculate sums and averages of each nozzle/hopper outlet. Show all calculations.*

RUN	TIME (sec)	Nozzle/hopper Outlet Number Along Boom (see equipment diagram for nozzle numbers)												
		1	2	3	4	5	6	7	8	9	10	11	Total	Avg.
1														
2														
3														
Total														
Avg.														

CALCULATIONS:

Total ml / boom / sec (average) = ml / sec (Caught)

WAS THIS A RECHECK OF DISCHARGE CALIBRATION? *(Check one)* YES_____ NO_____

IF YES, WERE RESULTS WITHIN 5% OF ORIGINAL CALIBRATION? *(Check one)* YES_____ NO_____

IMPORTANT: *An output consisting of an average of three runs must be used when calculating the sprayer output and amount of test substance to use. If this is a recheck (one run) then the results of the original calibration must be used. If the output result of the recheck is more than 5% different than the original calibration result, then two more runs are needed to produce a new, full calibration. The original calibration data, or a true copy, must be in this field data book.*

ABOVE DATA ENTERED BY: _____ DATE: _____

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FIELD ID NO: _____

IR-4 FIELD DATA BOOK

PART 6. APPLICATION RECORDS

D. SPEED CALIBRATION FOR **APPLICATION NUMBER(S)** ____

INSTRUCTIONS: Complete a separate form for additional times when a complete calibration or calibration- recheck of application equipment is required.

EQUIPMENT IDENTIFIER _____

SPEED CALIBRATION DATE _____ _____ PERFORMED BY_____ *(INITIALS)*

TERRAIN OF CALIBRATION TRACK *(e.g. tilled field)* _____

BRIEFLY DESCRIBE PROCEDURE USED FOR SPEED CALIBRATION _____

_____

_____

_____

SPEED CALIBRATION: *Calculate the speed of the application equipment. If appropriate, note the gear setting and /or RPM setting used in the speed calibration. Indicate the distance (in feet) of the track on which the application equipment was tested to determine speed (e.g. speed of application equipment tested for 100 ft.). The speed is calculated by dividing the length of test track (in feet or meters) by the time needed to cover that length (in seconds). Entry prompts have been provided for 2 additional runs. Show all calculations.* ***For studies beginning in 2011 or later, a speed recheck (one run) is required whenever an output recheck is performed.***

RUN	GEAR	RPM	Length of test track	TIME (sec)	CALCULATED SPEED (include units)
1					
2					
3					
Total of test run times (sec)			Average time (sec)		Average speed

CALCULATIONS:

Average ft/sec / Target ft/sec = % target ft/sec

WAS THIS A RECHECK OF SPEED CALIBRATION? *(Check one)* YES_____ NO_____
IF YES, WERE RESULTS WITHIN 5% OF ORIGINAL CALIBRATION? *(Check one)* YES_____ NO_____
The original calibration data, or a true copy, must be in this field data book.

NOTE: A target speed may be used for application calculations, rather than the mean of three runs, as long as the mean of the three runs in the speed calibration is within 5% of the target speed.
WAS THIS A CHECK OF A TARGET SPEED? *(Check one)* YES_____ NO_____
IF YES, WERE RESULTS WITHIN 5% OF TARGET SPEED? *(Check one)* YES_____ NO_____

ABOVE DATA ENTERED BY: _____ *DATE:* _____

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IR-4 FIELD DATA BOOK

PART 6. APPLICATION RECORDS

E. DELIVERY RATE CALIBRATION FOR **APPLICATION NUMBER(S)** ____

INSTRUCTIONS: Complete a separate form for each application, unless the same parameters are used-- you are using the same equipment, and have performed a recheck to confirm the result of the full calibration. Determine the rate of delivery from the application equipment. Briefly describe the procedure, including formulas used to determine delivery rate calibration. Show all calculations and units. Equations used in electronic (computer software) calculations in this trial must be transcribed or printed out and attached here. Computer-generated values (as opposed to those entered by the field cooperators) must be reviewed and clearly delineated by circling, initialing, and dating.

PROCEDURE/FORMULA:

Target: GPA; TS; Surfactant;

Sqft/acre = plots/acre
Sqft/plot

ml/plot = sec/plot / # passes = sec/pass
ml/sec

ft/pass = ft/sec
sec/pass

CALCULATIONS:

_____ ml/plot = ml/sec (Caught, part C) sec/plot / passes = sec/pass X 105%= sec/pass
95%= sec/pass

_____ ft/pass = sec/pass ft/sec TARGET

ABOVE DATA ENTERED BY: _____ *DATE:* _____

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FIELD ID NO: _____

IR-4 FIELD DATA BOOK

PART 6. APPLICATION RECORDS

F. VOLUME, MIXING AND DILUTION CALCULATIONS FOR **APPLICATION NUMBER(S)** ____

INSTRUCTIONS: Complete a separate form for each application, unless there are no changes in multiple applications. Show all calculations, formulas, and results below, define units of measure, and cite the initials of the person performing the calculations. Equations used in electronic (computer software) calculations in this trial must be transcribed or printed out and attached here. Computer-generated values (as opposed to those entered by the field cooperators) must be reviewed and clearly delineated by circling, initialing, and dating.

Target: GPA; TS; Surfactant;

Sqft/acre = plots/acre
Sqft/plot

TS/acre = TS/plot
plots/acre

43,560 sqft/ac = plots/ac
sqft/plot

gm TS/acre = gm TS/plot
plots/acre

gals/acre X 3785 ml/gal = ml/acre / plots/acre = ml/plot

gals/ac X 3785 ml/gal = ml/ac / plots/ac = ml /plot

ml/tank = plots/tank X TS/plot = TS/tank
ml/plot

ml/tank = plots/tank X gm TS/plot = gm TS/tank
ml/plot

Added _____ gm TS

ml/tank – (gm /TS + ml/surfactant)= _____ ml Carrier (water)

DESCRIBE HOLDING AND TRANSPORT OF TEST SUBSTANCE FROM STORAGE AREA TO LOCATION OF TANK MIXING *(E.g.: "Test substance held securely in an insulated cooler during transport to field site in the bed of a pickup truck" or "Tank mix prepared within walking distance of the chemical storage building")*

_____

_____

_____

_____

ABOVE DATA ENTERED BY: _____ *DATE:* _____

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IR-4 FIELD DATA BOOK

PART 6. APPLICATION RECORDS

I. POST APPLICATION RATE CONFIRMATION FOR **APPLICATION NUMBER** ____

APPLICATION DATE_____ *(COMPLETE A SEPARATE FORM FOR EACH APPLICATION DATE)*

RECORD PASS TIME AND PASS DIRECTION - *Complete the table by providing the time required to make each pass of the application equipment through the plot and direction of that pass (e.g. N > S, SW > NE, etc.).*

	TREATMENT __		TREATMENT __		
PASS NUMBER	TIME	DIRECTION	PASS NUMBER	TIME	DIRECTION
1					
2					
3					
4					
5					
6					
TOTAL PASS TIME					

PASS TIMES RECORDED BY (*INITIALS*)_____DISCHARGE RATE (ml/sec or g/sec): _____

ACTUAL AREA TREATED (*swath width or treated row or bed width x # of passes x length of plot*): _____

Note: *Use bed width for plots with multi-row beds.*

CALCULATION OF ACTUAL APPLICATION RATE - *Using information such as total pass time, plot size, tank mix amounts, and discharge rate (average of 3 outputs) determine the actual amount of formulated test substance applied to treated plots. (If the protocol does not include a rate of formulated product, then the amount of active ingredient should be determined.) Convert this amount to the amount applied per acre (or hectare), and determine deviation from target application in the protocol, rounded to the nearest whole percent. Show all calculations and label all units.* ***It is not sufficient to merely compare the actual pass times to the "practice" pass times.*** *The example formulas listed at the bottom of* 6J *may be used to calculate the application rate.* ***Calculations may be entered on a separate page placed after this one, if there is not enough space below.***

Actual: Sec/plot X ml/sec = ml/plot (carrier)

$$\text{ml/plot (carrier)} \times \frac{\text{gm TS/tank}}{\text{ml/tank}} = \text{gm TS/plot}$$

gm TS/plot X plots/acre = gm TS/acre

GPA Target(%) : _____ $\frac{\text{ml/plot(actual)}}{\text{ml/plot(target)}} \times 100 =$ **% of Target GPA/Plot**

TS Target(%):_____ $\frac{\text{gm TS/acre(actual)}}{\text{gm TS/acre(target)}} \times 100 =$ **% of TS Target/Acre**

WAS ACTUAL APPLICATION RATE WITHIN -5% TO +10% OF PROTOCOL RATE?

(Check one) YES____ NO____ IF NO, **Contact the Study Director immediately.**

ABOVE DATA ENTERED BY: _____ *DATE:* _____

FIELD ID NO: _____

IR-4 FIELD DATA BOOK

PART 6. APPLICATION RECORDS

F. VOLUME, MIXING AND DILUTION CALCULATIONS FOR **APPLICATION NUMBER(S)** ____

INSTRUCTIONS: Complete a separate form for each application, unless there are no changes in multiple applications. Show all calculations, formulas, and results below, define units of measure, and cite the initials of the person performing the calculations. Equations used in electronic (computer software) calculations in this trial must be transcribed or printed out and attached here. Computer-generated values (as opposed to those entered by the field cooperators) must be reviewed and clearly delineated by circling, initialing, and dating.

Target: GPA; TS; Surfactant;

$\frac{\text{Sqft/acre}}{\text{Sqft/plot}}$ = plots/acre

$\frac{\text{TS/acre}}{\text{plots/acre}}$ = TS/plot

$\frac{43{,}560 \text{ sqft/ac}}{\text{sqft/plot}}$ = plots/ac

$\frac{\text{ml TS/acre}}{\text{plots/acre}}$ = ml TS/plot

gals/acre X 3785 ml/gal = ml/acre / plots/acre = ml/plot

gals/ac X 3785 ml/gal = ml/ac / plots/ac = ml /plot

$\frac{\text{ml/tank}}{\text{ml/plot}}$ = plots/tank X TS/plot = TS/tank

$\frac{\text{ml/tank}}{\text{ml/plot}}$ = plots/tank X ml TS/plot = ml TS/tank

Added _____ ml TS

ml/tank – (ml /TS + ml/surfactant)= _____ ml Carrier (water)

ml/tank X .25% v/v = ml surfactant/tank

DESCRIBE HOLDING AND TRANSPORT OF TEST SUBSTANCE FROM STORAGE AREA TO LOCATION OF TANK MIXING *(E.g.: "Test substance held securely in an insulated cooler during transport to field site in the bed of a pickup truck" or "Tank mix prepared within walking distance of the chemical storage building")*

_____

_____

_____

_____

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PART 6. APPLICATION RECORDS

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	TREATMENT __		TREATMENT __		
PASS NUMBER	TIME	DIRECTION	PASS NUMBER	TIME	DIRECTION
1					
2					
3					
4					
5					
6					
TOTAL PASS TIME					

PASS TIMES RECORDED BY (*INITIALS*)_____DISCHARGE RATE (ml/sec or g/sec): _____

ACTUAL AREA TREATED (*swath width or treated row or bed width x # of passes x length of plot*): _____

Note: *Use bed width for plots with multi-row beds.*

CALCULATION OF ACTUAL APPLICATION RATE - *Using information such as total pass time, plot size, tank mix amounts, and discharge rate (average of 3 outputs) determine the actual amount of formulated test substance applied to treated plots. (If the protocol does not include a rate of formulated product, then the amount of active ingredient should be determined.) Convert this amount to the amount applied per acre (or hectare), and determine deviation from target application in the protocol, rounded to the nearest whole percent. Show all calculations and label all units.* ***It is not sufficient to merely compare the actual pass times to the "practice" pass times.*** *The example formulas listed at the bottom of* 6J *may be used to calculate the application rate.* ***Calculations may be entered on a separate page placed after this one, if there is not enough space below.***

Actual: Sec/plot X ml/sec = ml/plot (carrier)

$$\text{ml/plot (carrier)} \times \frac{\text{ml TS/tank}}{\text{ml/tank}} = \text{ml TS/plot}$$

ml TS/plot X plots/acre = ml TS/acre

GPA Target(%) : _____ $\frac{\text{ml/plot(actual)}}{\text{ml/plot(target)}} \times 100 =$ **% of Target GPA/Plot**

TS Target(%):_____ $\frac{\text{ml TS/acre(actual)}}{\text{ml TS/acre(target)}} \times 100 =$ **% of TS Target/Acre**

WAS ACTUAL APPLICATION RATE WITHIN -5% TO +10% OF PROTOCOL RATE?

(Check one) YES____ NO____ IF NO, **Contact the Study Director immediately.**

ABOVE DATA ENTERED BY: _____ *DATE:* _____