

IMPLEMENTATION OF PESTICIDE APPLICATOR CERTIFICATION SCHOOLS AND CONTINUING EDUCATION WORKSHOPS

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METRIC CONVERSION PAGE

SI (METRIC) CONVERSION FACTORS

<i>Approximate Conversions to SI Units</i>					<i>Approximate Conversions from SI Units</i>				
Symbol	When you know	Multiply by	To Find	Symbol	Symbol	When you know	Multiply by	To Find	Symbol
LENGTH					LENGTH				
in	inches	25.40	Millimeters	Mm	mm	millimeters	0.0394	inches	in
ft	feet	0.3048	meters	M	m	meters	3.281	feet	ft
yd	yards	0.9144	Meters	M	m	meters	1.094	yards	yds
mi	miles	1.609	Kilometers	Km	km	kilometers	0.6214	miles	mi
AREA					AREA				
in ²	square inches	645.2	square millimeters	mm ²	mm ²	square millimeters	0.00155	square inches	in ²
ft ²	square feet	0.0929	square meters	m ²	m ²	square meters	10.764	square feet	ft ²
yd ²	square yards	0.8361	square meters	m ²	m ²	square meters	1.196	square yards	yd ²
ac	acres	0.4047	Hectares	Ha	ha	hectares	2.471	acres	ac
mi ²	square miles	2.590	square kilometers	km ²	km ²	square kilometers	0.3861	square miles	mi ²
VOLUME					VOLUME				
fl oz	fluid ounces	29.57	Milliliters	MI	mL	milliliters	0.0338	fluid ounces	fl oz
gal	gallon	3.785	Liters	L	L	liters	0.2642	gallon	gal
ft ³	cubic feet	0.0283	cubic meters	m ³	m ³	cubic meters	35.315	cubic feet	ft ³
yd ³	cubic yards	0.7645	cubic meters	m ³	m ³	cubic meters	1.308	cubic yards	yd ³
MASS					MASS				
oz	ounces	28.35	Grams	G	g	grams	0.0353	ounces	oz
lb	pounds	0.4536	Kilograms	Kg	kg	kilograms	2.205	pounds	lb
T	short tons (2000 lb)	0.907	Megagrams	Mg	Mg	megagrams	1.1023	short tons (2000 lb)	T
TEMPERATURE (exact)					TEMPERATURE (exact)				
°F	degrees Fahrenheit	(°F-32)/1.8	Degrees Celsius	°C	°C	degrees Fahrenheit	9/5(°C)+32	degrees Celsius	°F
FORCE and PRESSURE or STRESS					FORCE and PRESSURE or STRESS				
lbf	poundforce	4.448	Newtons	N	N	Newtons	0.2248	poundforce	lbf
lbf/in ²	poundforce per square inch	6.895	Kilopascals	kPa	kPa	kilopascals	0.1450	poundforce per square inch	lbf/in ²

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1.0 INTRODUCTION

The Oklahoma Department of Transportation (ODOT) uses an integrated roadside vegetation management (IRVM) program to provide cost-effective management for vegetation on roadside right-of-way (1). IRVM involves proper vegetation selection, installation and post-installation management. Generally post-installation vegetation management involves selective mowing and weed control (1). The ability to properly select and apply herbicides for right-of-way weed control is a technical skill that is not traditionally taught in primary or secondary school. This specialized training is not thought to be available to ODOT through any current in-house training, nor through the normal non-contractual services provided by the Oklahoma Cooperative Extension Service.

Each year there is some turnover in ODOT roadside vegetation management field staff. This fact necessitates an on-going pesticide applicator training and Certification effort for new employees. Also, the vegetation management arena is ever changing. This is due to changes in state and Federal rules/regulations, new herbicide product development, new pesticide application equipment, product patent expiration and subsequent generic product offerings, changes in industry product marketing agreements, changes in products being awarded the state competitive bid contract, and lastly, ever emerging and evolving weed problems. This fluidity in the vegetation management profession necessitates an on-going training and education effort to ODOT herbicide applicators.

The ever changing vegetation management scene led the ODOT Director in 1995 to develop ODOT Herbicide Program Policy Directive D-504-1 (2). The Directive amongst several requirements, states that all personnel who will be applying herbicides must be Certified Pesticide Applicators under the requirements administered by the Oklahoma Dept. of Agriculture, Food and Forestry (ODAFF). The Directive (2) also requires anyone involved in the herbicide application to attend an annual training program pertinent to vegetation management.

2.0 OBJECTIVES

1. To conduct yearly herbicide applicator Certification schools that will help prepare new ODOT personnel for subsequent pesticide applicator testing & certification and
2. To provide each of the eight ODOT field Divisions with yearly herbicide applicator continuing education (CEU) workshops.

3.0 BACKGROUND AND SIGNIFICANCE OF WORK

For the past 24 years, annual pesticide applicator Certification schools have been conducted on an “as-needed” basis as a part of the joint roadside vegetation management & training projects between ODOT and the Oklahoma State University (OSU). These schools provide timely initial training of ODOT personnel who will be attempting to become Oklahoma Certified Pesticide Applicators.

Under Task 1 in our FY2010 Joint Project Proposal covering *Roadside Vegetation Management Training and Consultation*, we proposed to continue to offer these schools which help prepare ODOT personnel for the rigors of two 100 question exams that must be passed for ODOT personnel to become Certified in Oklahoma Category 6 (Right-of-Way). Certification in Category 6 - Right-of-Way qualify the applicator for use of pesticides for public road maintenance, power line maintenance, railroad right-of-way, storage tank areas, and other similar areas (3). Certification in Category 5 – Aquatic qualifies the applicator for treatment of weeds in standing or running water in man-made and/or natural impoundments, streams, etc (3). Category 5 Certification excludes public health activities (e.g. mosquito control) and water in totally closed systems.

ODOT Field Divisions have hosted yearly CEU workshops in Category 6 (Right-of-way) for the last 23 years. We proposed to continue to conduct these continuing education (CEU) workshops under Task 1 in our FY2010 Joint Project Proposal covering *Roadside Vegetation Management Training and Consultation*. These workshops have annually supplied current and vital information to approximately 600 Certified Applicators in ODOT each year. There will continue to be a need for some applicators to also obtain training in Oklahoma Category 5 (Aquatic Pest Control). This is due to the fact that some applicators need to treat ditch areas that contain either seasonal or permanent standing water and/or stream banks that adjoin rights-of-way.

4.0 PURPOSE

The purpose of the Pesticide Applicator Certification schools are to train participants to understand the fundamentals of integrated pest management (IPM) and to pass Oklahoma Certified Applicator testing requirements so as to become Certified Applicators. After gaining a fundamental understanding of IPM and becoming a Certified Applicator, the individual is usually ready to be given specific assignments by in-house ODOT mentors. Trainees are prepared to be successful at managing weeds on Oklahoma roadsides. The initial Pesticide Applicator Certification prepares the new Certified Applicators for participation in annual pesticide applicator continuing education (CEU Workshops) so that they can comply with ODOT policy as well as maintain their Certification in Oklahoma. Also, the initial training prepares the new applicator for training in the herbicide application equipment calibration workshops offered by the OSU RVM program under Task 4 of the Project 2156 proposal.

5.0 IMPLEMENTATION OF PESTICIDE APPLICATOR CERTIFICATION SCHOOLS AND TESTING

5.1 PREPARATIONS FOR FY2010 CERTIFIED APPLICATOR SCHOOLS

Division and Maintenance Engineers were contacted by phone and email in spring and summer of 2009 to estimate i) the number of participants for fall 2009 Certification schools as well as ii) determine suitability of propose specific training dates and locations of training. At the same time, the ODAFF was contacted to determine the availability of personnel to administer the Oklahoma Certified Pesticide Applicator Core and category specific exams. Upon obtaining this information from all parties, the dates, times and locations of the three Certification schools were set and the necessary information was provided in a July 24, 2010 memo sent by email to ODOT Division and Maintenance Engineers and ODAFF. Additionally, in that email the Division and Maintenance leaders were asked to secure the three training documents for their participants using the order form for Pesticide Applicator Certification Manuals from Oklahoma State University Central Mailing Services via the internet at: <http://pested.okstate.edu/order.pdf> (verified 27 December 2010). The specific training materials to be acquired by the Divisions for their personal were i) *Applying Pesticides Correctly* (Revised 2008), ii) the Category 6: *Right-of-Way Study Guide* (Revised 2009) and iii) the *Oklahoma Pesticide Laws & Rules* (Revised 2008).

5.2 PESTICIDE APPLICATOR CERTIFICATION SCHOOLS

Three (3) Pesticide Applicator Certification Schools were presented to Oklahoma Department of Transportation (ODOT) employees in 2009. The FY 2009 certification schools were conducted on October 20-22 at Muskogee, November 17-19 at Ada, and December 15-17, 2009 at Clinton. The schools were presented at the Divisions 1, 3 and 5 Headquarters facilities, respectively. Seventeen (17), twenty seven (27) and twenty one (21) ODOT employees [65 total] participated in the three schools, respectively.

The first and second day of each of the three schools were conducted from 8:45 a.m. to 3:30 p.m. The schools were held using a classroom-style set up. Presentation of information was via an oral lecture using Microsoft Power Point visual aids as well as printed handouts that were provided. Participants were encouraged to ask questions during the lecture if information was not clear and a question and answer segment was provided immediately following each topic lecture. Our instructors for the schools were Extension Associates Mr. Craig Evans, M.S. and Mr. Douglas Montgomery, M.S.

5.3 SPECIFIC TOPICS OF PESTICIDE APPLICATOR CERTIFICATION SCHOOLS

Topics included in each of the three ODOT Certified Applicator Schools were: integrated pest management (IPM), IPM terminology, state and federal rules and regulations, pest identification, mechanical and cultural pest management strategies, understanding pesticide labels and material safety data sheets (MSDS), personal protective equipment (PPE), pesticide selection, pesticide application techniques, spray system technologies, environmental protection, application record keeping, proper pesticide storage and disposal and how to obtain pesticide applicator continuing

education. These topics were drawn from the three key training manuals that Division and/or Maintenance Engineers had acquired for their employees in advance of the training. The training included and was consistent with the presentation of information in the i) *Applying Pesticides Correctly* (Revised 2008), ii) the *Category 6: Right-of-Way Study Guide* (Revised 2009) and iii) the *Oklahoma Pesticide Laws & Rules* (Revised 2008). OSU personnel also handed out copies of supplemental information that would be useful to ODOT personnel as they assumed their roll in ODOT vegetation management activities following initial Certification as Oklahoma Pesticide Applicators.

5.4 APPLICATOR TESTING & ACHIEVEMENT OF CERTIFICATION

On the third day of each of three FY2010 schools, pesticide applicator testing was conducted from 9:00 a.m. - 12:00 p.m. by representatives of the Oklahoma Department of Agriculture, Food & Forestry (ODAFF). ODOT personnel first took the Core exam; a 100 question multiple choice written exam. ODAFF representatives then scored the participants Core exam. Personnel that passed the core exam were next allowed to take the 100 question multiple choice written category specific exam. The category specific exam of most interest to ODOT was the category 6 (Right-of-Way) exam although in some years there are ODOT personnel that also take the category 5 (aquatic weed control) exam.

Passing the core exam and category specific exam was required in order to become a Certified Pesticide Applicator in Oklahoma. Of the 65 participants in the three Certification Schools, 63 people tested for Certification and 53 passed both the core and Category 6 (Right of Way) exam to become Oklahoma Certified Pesticide Applicators in Category 6: Right-of-Way. Thus, the FY2010 ODOT Certified Applicator School participants had an overall 84% pass rate in taking the Certification exams.

5.5 POST-TESTING NOTICE OF CERTIFICATION OF PERSONNEL

Following the testing of ODOT employees, the ODAFF provided the test scores and notification of achievement of Certification in the ROW category to OSU RVM program Extension Associate Mr. Craig Evans. Mr. Evans then sent the information on these 63 individuals to their respective ODOT Division Headquarters, to the ODOT Maintenance Division headquarters in Oklahoma City and to the ODOT Planning & Research Division.

5.6 POST-TESTING RECORD KEEPING AT OKLAHOMA STATE UNIVERSITY

Upon receiving the results of testing and certification from ODAFF for ODOT participants at the three Certification schools, Mr. Craig Evans, Extension Associate in our program, entered the applicator names, ODOT employee number, employee Certified Applicator number, Division of employment, date of testing, testing score and categories of certification into our certified pesticide applicator database. This database is maintained under the Task 2 Objective: *Maintain Pesticide Applicator Training Records For ODOT Certified Pesticide Applicators*, as a part of the Joint Project 2156: *Roadside Vegetation Management Training & Consultation*. Several times per year

ODOT administrative personnel request verification of applicator Certification status and the number of CEUs earned by applicators participating in past OSU CEU programs.

6.0 IMPLEMENTATION OF PESTICIDE APPLICATOR CONTINUING EDUCATION (CEU) WORKSHOPS

6.1 PESTICIDE APPLICATOR CONTINUING EDUCATION WORKSHOPS

Fourteen (14) Pesticide Applicator Continuing Education (CEU) Workshops were conducted in FY2010. The locations, dates and attendance at each of the workshops are shown in Table 1. The workshops were approved by the ODAFF as program OK-10-010 and awarded up to four (4) pesticide applicator continuing education units (CEUs) in Category 6 (Right-of-way) and Category 10 (Demonstration & Research) as well as up to one (1) CEU in Category 5 (Aquatic). The training agenda for the CEU programs is shown in Table 2.

Participant numbers were high enough that two workshops were required in each Division with the exception of Division 2 and 6, in which only a single workshop was offered. A snow storm in the first week of February resulted in rescheduling the Division 4 workshops to February 16 and 17. A total of 644 Certified Pesticide Applicators were trained in the FY2010 CEU workshops as compared to 665 individuals in FY2009. This represents a decrease of 21 individuals or a 3.2% decrease in attendance from 2009. It is believed that some of this decrease is due to cost saving measures by ODOT to insure that attendees participating in equipment certification and continuing education efforts are actually engaged in the area of work in which they are attending continuing education.

6.2 CEU AWARDING AND POST WORKSHOP RECORD KEEPING

Attendance records of participants in the ODAFF approved CEU programs were supplied to ODAFF so that attendees would be awarded CEUs by ODAFF. Attendance records were also supplied to ODOT Division and Maintenance Engineers, the Maintenance Division Headquarters and the Planning & Research Division. Our records of attendance maintained under Task 2 of Joint Project 2156 were updated to reflect the participation of the 644 applicators in the 2010 CEU workshops.

7.0 SUMMARY AND CONCLUSIONS

Three (3) pesticide applicator Certification schools were conducted in fall of 2009 to train a total of 65 participants. Sixty-three of the attendees at these workshops took the ODAFF administered Certification exams. Fifty-three (53) participants passed both the Core and Category 6: Right-of-Way exam to become Oklahoma Certified Pesticide Applicators in Category 6 (an 84 percent pass rate). Division and Maintenance Engineers as well as ODOT Maintenance Division Headquarters and the State Planning & Research Division were furnished with applicator contact information and Certification status/information. Certified applicator information was used to update the pesticide applicator records maintained by OSU for ODOT.

Fourteen (14) Pesticide Applicator Continuing Education (CEU) Workshops were conducted across 8 ODOT field Divisions in February and March of 2010. A total of 644 Certified Applicators received continuing education training. Records of participation in ODAFF approved CEU programs by ODOT personnel were furnished to the ODAFF as well as the ODOT field Divisions, the Maintenance Division Headquarters and the Planning & Research Division. Participation in CEU workshops resulted in granting of CEUs to ODOT participants in the workshops. ODOT participants also gained knowledge on various Integrated Pest Management and Integrated Vegetation Management products, topics and techniques. This increase or maintained operational knowledge of attendees and should insure continued effective vegetation management skills. This training is believed to be essential in delivery of cost-effective vegetation management on Oklahoma roadsides.

As of the close of Federal FY2010 the OSU-RVM program maintained records of pesticide applicator Certification status and educational session participation for 744 ODOT Certified Pesticide Applicators. These records were carried forward into Federal FY2011 under the terms of the current Joint 2156 ODOT/OSU Project.

Table 1. 2010 ODOT Herbicide Applicator Continuing Education (CEU) Workshop Schedule and Attendance.

CEU Workshop Dates	Day of Week	ODOT Division	Location	Attendance by Division
February 9	Tuesday	Div. 5	Clinton HQ	Div 5 - 116
February 10	Wednesday	Div. 5	Clinton HQ	
February 11	Thursday	Div. 6	Woodward – High Plains Technology Center	Div 6 - 42
February 16	Tuesday	Div. 4	Perry HQ	Div 4 - 77
February 17	Wednesday	Div. 4	Perry HQ	
February 24	Wednesday	Div. 1	Muskogee HQ	Div 1 - 94
February 25	Thursday	Div. 1	Muskogee HQ	
March 2	Tuesday	Div. 7	Duncan HQ	Div 7 - 82
March 3	Wednesday	Div. 7	Duncan HQ	
March 16	Tuesday	Div. 8	Tulsa HQ	Div 8 - 91
March 17	Wednesday	Div. 8	Tulsa HQ	
March 23	Tuesday	Div. 3	Ada HQ	Div 3 - 87
March 24	Wednesday	Div. 3	Ada HQ	
March 25	Thursday	Div. 2	Antlers HQ	Div 2 - 55
Total¹				644

¹ Total attendance represents the total number of ODOT employees who attended that were also Certified Oklahoma Pesticide Applicators.

Table 2. Program Agenda for 2010 ODOT Herbicide Applicator Continuing Education Workshops Conducted as Program OK-10-010.

Time	Topic	Presenter
8:45 – 9:00	Registration	
9:00 – 9:15	Opening Comments by ODOT & OSU	
9:15 – 9:35 (20min)	ODAFF Certification Update - Craig Evans, Extension Associate, OSU	
	Explanation of the new certification period for Category 6 (Right-of-way), re-certification protocols and CEU credit expectations from ODAFF CEU accumulation expectation for Category 5 (Aquatic) herbicide applicators.	
9:35 – 10:05 (30min)	Identifying Roadside Grasses - Doug Montgomery, Extension Associate, OSU	
	Program providing thorough plant descriptions, life cycles, and specific morphological characteristics for identifying beneficial and weedy grass species commonly found along Oklahoma roadsides and drainage areas.	
10:05 – 10:15 (10min)	Oklahoma Legislative Update: – Craig Evans	
	Presentation will explain the status and ramifications of Senate Bill 296 that involves new requirements proposed for Oklahoma Laws and Rules governing hormone herbicide application.	
10:15 – 10:35	Break	
10:35 – 11:05 (30min)	Introduction to LandMaster® BW Herbicide – Craig Evans	
	Introduces ODOT herbicide applicators to the replacement product for Campaign®. An in-depth examination of herbicide chemistry, weeds controlled, application timing, personal protective equipment requirements, use sites, use restrictions and environmental precautionary labeling.	
11:05 – 11:35 (30min)	Identifying Roadside Broadleaf Weeds – Doug Montgomery	
	Presentation will provide thorough plant descriptions, life cycles, and specific morphological characteristics for identifying broadleaf weed species commonly found along Oklahoma roadsides and drainage areas.	
11:35-12:35	Lunch	
12:35 – 1:05 (30min)	What is the Clean Water Act? - Craig Evans	
	Presentation will examine and explain the history of the act. Examine the goals, implementation strategies and possible ramifications for Aquatic and Right-of-way applicators working for ODOT.	
1:05 – 1:35 (30min)	Johnsongrass Control Options - Doug Montgomery	
	Detailed herbicide treatment options, use rates, treatment timing, and treatment precautions. A brief update on the future use of MSMA and possible future MSMA options will be addressed.	
1:35 – 1:55	Break	
1:55 – 2:10 (15min)	EPA Pesticide Registration Notice on Drift – Craig Evans	
	Presentation will cover EPA proposed guidelines to minimize drift through more specific herbicide labeling. Coverage of ODAFF Sensitive Crop Locator in continuing efforts to utilize computer based tools.	
2:10 – 2:40 (30min)	OSU Research Update- Doug Montgomery	
	2009 Roadside Weed Control Research Trials conducted by the OSU Roadside Vegetation Management Program. Examination of individual trial objectives, results, and conclusions.	
2:40 – 3:00 (20min)	Review of OSU-RVM Pub E-958 and Approved herbicide and Adjuvant List (AHAL) Update - Craig Evans	
	OSU publication E-958, <i>Suggested Maintenance Practices for Roadside Weed and Brush Problems</i> including recommendations for terrestrial and aquatic weeds. ODOT/OSU AHAL program results will also be distributed and explained.	

8.0 REFERENCES

1. Montgomery, D.P., D.L. Martin and C.C. Evans. 2009. Section 1.0 Introduction. Roadside Vegetation Management Guidelines. 4th Edition. Oklahoma State University. Dept of Horticulture & Landscape Architecture. 258 Pages. Available on-line at: <http://www.okladot.state.ok.us/hqdiv/p-r-div/spr-rip/library/2156-2157/fhwa-ok0902.pdf>. (Verified 20 December 2010).
2. ODOT Director. 1995. Herbicide Program Policy Directive D-504-1. *In* Montgomery, D.P., D.L. Martin and C.C. Evans. 2009. Section 4.6 ODOT Herbicide Program Policy. Pages 34-36. Roadside Vegetation Management Guidelines. 4th Edition. Oklahoma State University. Dept of Horticulture & Landscape Architecture. 258 Pages. Available on-line at: <http://www.okladot.state.ok.us/hqdiv/p-r-div/spr-rip/library/2156-2157/fhwa-ok0902.pdf>. (Verified 20 December 2010).
3. ODAFF. 2010. Pesticide Applicator Certification Guide. Oklahoma Dept of Agriculture, Food & Forestry. Available on-line at: <http://www.ok.gov/~okag/cps-overviewhome.htm#categories>. (verified 27 December 2010).