

**Title 2—DEPARTMENT OF
AGRICULTURE
Division 70—Plant Industries
Chapter 25—Pesticides**

PROPOSED AMENDMENT

2 CSR 70-25.150 [Course of Instruction and] Standards of Competence for the Certification of [Certified] Private Applicators. The department is amending the rule title, amending sections (1) through (3), and adding sections (4) through (6)

PURPOSE: This amendment clarifies the standards of competence for private applicators.

[(1) Certified private applicators shall attend a course of instruction approved by the director as required by section 281.040, RSMo (1986). The course of instruction shall encompass the standards of competence as provided in section (2) of this rule. Private applicators also shall be instructed as to the general pest problems and general pest control practices associated with agricultural operations, proper storage, application, handling and disposal of pesticides and pesticide containers and the legal responsibilities of private applicators.

(2) Standards of Competence.

(A) The recognition of common agricultural pests and the recognition of the damage caused by these pests;

(B) The reading and understanding of the label and labeling information, including the common name of the pesticide; the pest to be controlled; timing and methods of the application of the pesticide; safety precautions; pre-harvest intervals; reentry intervals and disposal procedures for pesticides and pesticide containers;

(C) The application of pesticides in accordance with label and labeling instructions and warnings, including the ability to prepare the proper concentration of the pesticides to be used under particular circumstances, taking into account factors such as the area to be covered, speed in which application equipment will be driven and the quantity to disperse in a given period of operation;

(D) The recognition of local environmental situations that must be considered during application to avoid contamination; and

(E) The recognition of poisoning symptoms and procedures to follow in case of a pesticide accident.

(3) Attendance of an approved course of instruction by the private applicator shall be verified by the signature of the instructor and the signature of the private applicator on a verification document provided by the director. The document shall be forwarded to the Missouri Department of Agriculture as proof of attendance. Upon receipt of the document of verification of attendance, the director shall forward to the private applicator a certified private applicator license.]

(1) To qualify for private applicator certification or provisional private applicator certification, private applicators are required to read and demonstrate competency in the understanding of pesticide labels and labeling and shall:

(A) Attend a University of Missouri Extension private applicator Category 20–General Agricultural Pest Control certification training program;

(B) Complete a University of Missouri Extension private applicator Category 20–General Agricultural Pest Control on-line certification training program; or

(C) Pass the department’s private applicator Category 20–General Agricultural Pest Control certification examination.

(2) Private applicators must obtain certification in Category 20–General Agricultural Pest Control prior to becoming certified in one of the additional private applicator certification categories. Private applicators that use restricted use pesticides to fumigate soil must also obtain certification in Category 21–Soil Fumigation Pest Control. Private applicators that use restricted use pesticides to fumigate non-soil commodities or non-soil sites must also obtain certification in Category 22–Non-Soil Fumigation Pest Control. Private applicators that apply restricted use pesticides through aerial application must also obtain certification in Category 23–Aerial Pest Control. The certification training programs, on-line certification training programs, and certification examinations provided for Categories 20, 21, 22, and 23 shall encompass the standards of competence as provided in sections (3), (4), (5), and (6) of this rule.

(3) Category 20–General Agricultural Pest Control Standards of Competence. The applicant shall demonstrate practical knowledge of:

(A) The recognition of common agricultural pests, [*and the recognition of the*] damage caused by these pests[;], **the importance of selecting proper pesticide products for effective control, and the importance of verifying that the label does not prohibit the use of the product to control the target pest(s) or use site;**

(B) [*The r*]Reading and understanding [*of*] the label and labeling information, **including general format and terminology**, [*including*] the common name of the pesticide[;], the pest to be controlled[;], timing and methods of [*the*] application of the pesticide[;], **signal words, symbols**, safety precautions[;], pre-harvest intervals[;], reentry intervals, and disposal procedures for pesticides and pesticide containers;

(C) **All use restrictions and directions for use found on the label and labeling, certification requirements in the appropriate category to use restricted use pesticides, and State and Federal pesticide laws requiring the use of any registered pesticide in a manner consistent with its labeling;**

(D) **The meaning of product classification, the difference between mandatory and advisory labeling language, and understanding and complying with product-specific notification requirements;**

[(C)] (E) The application of pesticides in accordance with label and labeling instructions and warnings, including the ability to prepare the proper concentration of the pesticides to be used under particular circumstances, taking into account factors such as the area to be covered, speed in which application equipment will be driven, and the quantity to dispense in a given period of operation;

(F) **The characteristics of pesticides, including types of pesticides, types of formulations, compatibility, synergism, persistence, animal and plant toxicity, hazards and residues associated with use, factors influencing effectiveness or leading to problems such as pesticide resistance, and dilution procedures;**

[(D)] (G) The recognition of local environmental situations that must be considered during application to avoid contamination[;] **and potential environmental consequences of the use and misuse of pesticides, including weather and other climatic conditions, types of terrain, soil, or other substrate, presence of fish, wildlife, and nontarget organisms, and drainage patterns;**

[(E)] (H) [*The recognition of poisoning symptoms and procedures to follow in case of a pesticide accident.*] **Measures to avoid or minimize adverse health effects, common types and causes of pesticide mishaps, needs for and proper use of personal protective clothing and equipment, and precautions to prevent injury to applicators and other individuals in or near treated areas;**

(I) **Likely ways pesticide exposure may occur, symptoms of pesticide poisoning, the difference between acute toxicity and chronic toxicity and their long term effects, understanding that a pesticide's risk is a function of exposure and the pesticide's toxicity, and first aid and other procedures to be followed in case of a pesticide mishap;**

(J) **Proper identification, storage, transport, handling, mixing procedures, and disposal methods for pesticides and used pesticide containers, including precautions to be taken to prevent children from having access to pesticides and pesticide containers;**

(K) **Application equipment, including types of equipment and the advantages and limitations of each, uses, maintenance, and calibration procedures;**

(L) **Selecting appropriate application methods including methods used to apply various forms and formulations of pesticides, which application method to use in a given situation, that use of a fumigant or aerial application requires additional certification, and how the selection of application method and use of a pesticide may result in unnecessary, ineffective use and misuse;**

(M) **The prevention of pesticide drift and pesticide loss into the environment;**

(N) **The state and federal pesticide laws and regulations, including the Worker Protection Standard in 40 CFR Part 170;**

(O) **The importance of maintaining secure storage for pesticides and other chemicals and how to communicate information about pesticide exposures and risks with agricultural workers and handlers and other persons;**

(P) **Agricultural Pest Control, including specific pests of relevant agricultural commodities and the control of such pests with pesticides, how to avoid contamination of ground and surface waters, understanding pre-harvest and restricted entry intervals and entry-restricted periods and areas, and understanding specific pesticide toxicity and residue potential when pesticides are applied to animal or animal product agricultural commodities; and**

(Q) **Hazards associated with using pesticides on animals or places in which animals are confined based on formulation, application technique, age of animal, stress, and extent of treatment.**

(4) Category 21–Soil Fumigation Pest Control Standards of Competence. The applicant shall demonstrate practical knowledge of:

(A) Fumigant label and labeling comprehension, including labeling requirements specific to soil fumigation, labeling requirements for certified applicators and handlers of fumigants, permitted fumigant handler activities, and the safety information that certified applicators must possess while using fumigants;

(B) Entry-restricted period for different tarped and untarped field applications, recordkeeping requirements imposed by labels and labeling, and labeling provisions unique to products containing certain active ingredients;

(C) Labeling requirements for fumigation management plans, such as when a fumigant management plan must be in effect, how long must it be kept on file, where must it be kept during application, and who must have access to it;

(D) The elements of a fumigation plan and resources for preparing a plan, responsibility for verifying that the fumigant management plan is accurate, and the elements, purpose, and content of a post-application summary, who must prepare it, and when it must be completed;

(E) Measures to minimize adverse effects, including understanding how certified applicators, field workers, and bystanders can become exposed to fumigants;

(F) How common problems and mistakes can result in direct exposure to fumigants, the signs and symptoms of human exposure to fumigants, air concentrations, and requirements for respirators;

(G) The steps to take if a fumigant applicator experiences sensory irritation, air monitoring, when required and when to sample the air, buffer zones, first aid measures, and the labeling requirements for transportation, storage, spill cleanup, and emergency response for soil fumigants, including safe disposal of containers and contaminated soil;

(H) Characteristics of soil fumigants, including specific human exposure concerns, how soil fumigants change from liquid or solid to a gas, how soil fumigants disperse in the application zone, and compatibility concerns for tanks, hoses, tubing, and other equipment;

(I) Selecting appropriate application methods and timing, including application methods for water-run and non-water-run applications, equipment used for each soil fumigant, and site characteristics that influence fumigant exposure;

(J) Temperature inversions and their impact on soil fumigant applications, weather conditions that could impact timing of soil fumigation application, pre-application inspection of application equipment, the purpose and methods of soil sealing, and which methods to use;

(K) The use of tarps, how to seal tarps, labeling requirements for tarp removal, perforation, and repair, calculating the amount of fumigant required for a specific treatment area, and understanding the basic techniques for calibrating soil fumigation equipment;

(L) Soil and pest factors that influence fumigant activity, including influence of soil factors on fumigant volatility and movement within the soil and factors that influence gaseous movement through soil and air;

(M) Soil characteristics, including how they affect the success of a soil fumigant application, accessing soil moisture, correcting for soil characteristics that could hinder a successful soil fumigation, pest(s) identification and verification that the soil fumigant will control pest(s), the relationship between pest density and application rate, and proper application depth and timing;

(N) Personal protective equipment (PPE), including following all label directions requiring PPE use and selecting, inspecting, using, caring for, and replacing PPE;

(O) The types of respirators required when using specific soil fumigants and how to use respirators properly (medical evaluation, fit testing, and required replacement of

cartridges and canisters), labeling requirements and other laws applicable to medical evaluation for respirator use, fit test, training, and recordkeeping;

(P) Fumigant management plans and post-application summaries, including when a fumigation management plan must be in effect, how long it must be kept on file, where it must be kept during a fumigant application, and who must have access to it;

(Q) The elements of a fumigant management plan and resources available for preparing a plan, the person responsible for verifying that a fumigation management plan is accurate, and the elements, purpose, and content of a post-application summary, who must prepare it, and when it must be completed;

(R) Buffer zones and posting requirements, including buffer zones and buffer zone periods, identifying those who can be in the buffer zone and those who cannot be in the buffer zone during the buffer zone period;

(S) How to use the buffer zone table from the labeling to determine the size of the buffer zone, factors that determine the buffer zone credits for application scenarios, and calculating buffer zones using credits; and

(T) Distinguishing buffer zone posting and treated area posting, including the pre-application and post-application posting timeframes for each and the proper choice and placement of warning signs.

(5) Category 22–Non-soil Fumigation Pest Control Standards of Competence. The applicant shall demonstrate a practical knowledge of:

(A) The use of fumigants on sites other than soil, including label and labeling comprehension of products used to perform non-soil fumigations and labeling requirements specific to non-soil fumigants;

(B) Safety measures to minimize adverse health effects, including understanding how applicators and bystanders can become exposed to fumigants, common problems and mistakes that can result in direct exposure to fumigants, and the signs and symptoms of human exposure to fumigants;

(C) When air concentrations trigger applicators, handlers, and workers to wear respirators or to exit the application site, the steps to take if an applicator using a fumigant experiences exposure, and first aid measures to take in the event of exposure to a fumigant;

(D) When to monitor and sample air, monitoring buffer zones and who is permitted to be in the buffer zone, labeling requirements for transportation, storage, spill clean up, and emergency response to non-soil fumigants, the safe disposal of containers and contaminated materials, and management of empty containers;

(E) Non-soil fumigant chemical characteristics, specific human exposure concerns for non-soil fumigants, how fumigants change from a liquid or solid to a gas, and how fumigants disperse in the application zone;

(F) Compatibility concerns for tanks, hoses, tubing, and other equipment;

(G) Appropriate application methods and timing, including application methods and equipment commonly used for non-soil fumigation, site characteristics that influence fumigant exposure, and conditions that could impact timing of non-soil fumigations, such as air stability, air temperature, humidity, and wind currents, and labeling restrictions limiting applications when specific conditions are present;

(H) Conducting pre-application inspections of equipment and the site to be fumigated, the purpose and methods of sealing the area to be fumigated, and the factors that determine when and which sealing methods to use;

(I) Calculating the amount of fumigant required to treat the site, basic techniques for calibrating non-soil fumigant application equipment, and understanding when and how to conduct air monitoring and when it is required;

(J) Pest factors that influence fumigant activity, including influence of pest factors on fumigant volatility, factors that influence gaseous movement through the area being fumigated and into the air, and identifying pests causing the damage and verifying they can be controlled with fumigation;

(K) The relationship between pest density and application rate and the importance of proper application rate and timing;

(L) Personal protective equipment, including how to use it properly, following labeling directions for required personal protective equipment, and selecting, inspecting, using, caring for, replacing, and disposing of personal protective equipment;

(M) The different types of respirators required when using non-soil fumigants and how to use them properly, including when to replace cartridges and canisters;

(N) Labeling requirements and other laws applicable to medical evaluations and fit testing for respirator use and applicable training and recordkeeping;

(O) When fumigation management plans and post-application summaries are required, including when a fumigation management plan must be in effect, how long it must be kept on file, where it must be kept during the application, and who must have access to it;

(P) The elements found in a fumigation management plan and resources available to assist the applicator in preparing the fumigant management plan, who is responsible for verifying the plan is accurate, and the elements, purpose, and content of a post-application summary, who must prepare it, and when it must be completed; and

(Q) Posting requirements, including understanding who is allowed in an area being fumigated or after fumigation and who is prohibited from being in such area, distinguishing fumigant labeling-required posting and treated area posting, including the pre-application and post-application posting timeframes for each, and the proper choice and placement of warning signs.

(6) Category 23—Aerial Pest Control Standards of Competence. The applicant shall demonstrate a practical knowledge of:

(A) The pest problems and pest control practices associated with performing aerial applications;

(B) Labeling requirements and restrictions specific to aerial application of pesticides, spray volumes, buffer and no-spray zones, and weather conditions specific to wind and inversions;

(C) Label-mandated recordkeeping requirements for aerial pesticide applications including application conditions;

(D) Application equipment, including how to choose and maintain manned and unmanned aircraft equipment, either fixed or rotary wing, for aerial application, to ensure it is in proper operating condition prior to beginning an application, selecting proper nozzles to ensure appropriate pesticide dispersal and to minimize drift;

(E) The components of an aerial pesticide application system (pesticide hoppers, tanks, pumps, and types of nozzles) and nozzle flow charts;

(F) Determining the number of nozzles for intended pesticide output using a nozzle flow rate chart, aircraft speed, and swath width;

(G) How nozzles are placed to compensate for uneven dispersal due to uneven airflow from wingtip vortices, helicopter rotor turbulence, and aircraft propeller turbulence and where to place nozzles to produce the appropriate droplet size;

(H) How to maintain the application system in good repair, including pressure gauge accuracy, filter cleaning according to schedule, and checking nozzles for excessive wear;

(I) How to calculate required and actual flow rates, how to verify flow rate using fixed timing, open timing, known distance, or a flow meter, and when to adjust and calibrate application equipment;

(J) Application factors to consider before and during the application, including weather conditions that could impact application by affecting aircraft engine power, take-off distance, climb rate, and spray droplet evaporation;

(K) How to determine wind velocity, direction, and air density at the application site and potential impact of thermals and temperature inversions on aerial pesticide application;

(L) Methods to minimize off-target pesticide movement, including determining drift potential of a product by use of a smoke generator and how to evaluate vertical and horizontal smoke plumes to assess wind direction, speed, and concentration;

(M) Selecting techniques that minimize pesticide movement out of the treated area and how to document special equipment configurations or flight patterns used to reduce off-target pesticide drift;

(N) Performing an aerial pesticide application, including selecting a flight altitude that minimizes streaking and off-target pesticide drift and choosing a flight pattern that ensures applicator and bystander safety and proper application; and

(O) The importance of engaging and disengaging spray precisely when entering a predetermined swath pattern at the application site and the tools used to mark swath patterns, such as global positioning systems and flags.

AUTHORITY: section 281.040, RSMo 1986. Original rule filed May 12, 1976, effective Oct. 21, 1976.*

**Original authority: 281.040, RSMo 1974, amended 1977, 1988.*

PUBLIC COST: This proposed amendment will not cost state agencies or political subdivisions more than five hundred dollars (\$500) in the aggregate.

PRIVATE COST: This proposed amendment will not cost private entities more than five hundred dollars (\$500) in the aggregate.

*NOTICE OF PUBLIC HEARING AND NOTICE TO SUBMIT COMMENTS: Anyone may file a statement in support of or in opposition to this proposed amendment with the Missouri Department of Agriculture, PO Box 630, Jefferson City, MO 65102. To be considered, comments must be received within thirty (30) days after publication of this notice in the **Missouri Register**. A public hearing is scheduled for 10:00 a.m., July 22, 2024, Missouri Department of Agriculture, Third Floor Boardroom, 1616 Missouri Boulevard, Jefferson City, MO, 65109.*