I. INTRODUCTION

Pesticides are chemical or biological agents used for the destruction of organisms detrimental to humans or the environment. Pesticides include insecticides, fungicides, herbicides, miticides, nematicides, and molluscicides.

Pesticides are unique in that they are deliberately added to the environment for the purpose of killing or injuring some form of life which is detrimental to man or his environment. Ideally they should be specific for undesirable organisms but many of them are injurious to nontarget species. The indiscriminate use of pesticides thus, could affect the health of people and the environment. Their applications must, therefore, be made in a manner that will minimize the possibility of exposure of people or other nontarget organisms.

The purpose of the University pesticide program is to establish guidelines for the safe use of pesticides at the university. It ensures that the people who apply pesticides are properly trained and use appropriate safety precautions. It also describes medical surveillance, certification, storage, and recordkeeping. These guidelines do not preempt the requirements of other applicable regulations, including the EPA Worker Protection Standard.

II. PESTICIDE USE POLICY

The main objectives of this program are to ensure that all pesticides workers applying pesticides on university property are properly trained, use adequate safety precautions and are medically monitored to protect their health. The following guidelines must be followed when using pesticides at Rutgers:

A. Applicator Training
B. Safety Precautions
C. Medical Surveillance
D. Inventory and Storage

A. Applicator Training

Rutgers University employees who use or supervise the use of any pesticide (as part of their employment) are required to be certified as commercial pesticide applicators and registered with the New Jersey Department of Environmental Protection as required under the New Jersey Pesticide Control Regulations. Pesticide applicator certification is a two-step process: Core -- general pesticide safety principles, environmental considerations, and current laws and regulations, and Category -- pests and pesticide use specific to the category of certification.

The certification examination is held monthly at various locations throughout the state of New Jersey and, once passed, is valid for five (5) years. However, in order to maintain certification the certified applicator must re-register annually and must meet the requirements for continuing certification.

All Certified Pesticide Applicators are required to maintain their certification current and are expected to produce their certification card upon request.

For further details on certification, contact the Extension Pesticide Coordinator, Room 217, Blake Hall, Cook Campus, 932-9801.
B. Safety Precautions

To assure safe handling and application of pesticides, the following rules must be observed:

1. Pesticides are to be used only for their intended purposes. All pesticides must be applied according to label directions.

2. Spraying is to be planned to prevent drift of pesticides into non-target areas, and to prevent contamination of streams, ponds, and water supplies. Notification of apiarists should be made when required by regulations.

3. Pesticides are to be applied only with equipment that is properly maintained and calibrated. Equipment must be fitted with an effective valve or device to prevent backflow of pesticides or pesticide contaminated water into water supply system.

4. The appropriate safety equipment must be used and all users must be trained in its use.

5. Only respirators and gas masks jointly approved by the National Institute of Occupational Safety and Health (NIOSH) and the Mining Enforcement and Safety Administration (MESA) for pesticides are to be used. REHS must be contacted for respirator approval, for instructions in their proper use and fit testing. *Respirators may not be worn* without approval from the Occupational Health Physician at the Hurtado Health Center, and instructions and fit testing from REHS.

6. Personal protective equipment must be worn during mixing and application of pesticides. This includes, in addition to an approved respirator as indicated above, impervious clothing such as rain gear, gloves, and goggles. If there is accidental skin contact, the affected area(s) must be washed immediately.

7. No one is to re-enter a newly sprayed area before the reentry interval has elapsed. Information on such re-entry times may be obtained from the label and/or respective supervisors. Warning signs should be posted when required.

8. Storage of food or eating in pesticide use or storage areas is prohibited.

9. Never eat, drink, smoke, or apply cosmetics when working with pesticides; always wash your hands and face thoroughly first. Such washing is also required before you leave the work area.

C. Medical Surveillance

1. Physical Examination

All pesticide workers, exposed during handling, mixing, loading, or application of pesticides, are required to undergo annual physical examinations by the University Occupational Health Physician at Hurtado Health Center, 11 Bishop Place, New Brunswick. This examination includes one or more of the following:

   a. Routine lab work (CBC, UA, CPI)
   b. Cholinesterase test
   c. EKG
   d. Pulmonary function test (Spirometry I)

* These tests are not required every year
e. Chest X-ray

A local physician may not be used to perform the physical examination; therefore, supervisors must allow time for this examination. A local physician may be used only for (1) emergency services, or (2) blood sampling (with prior approval from Occupational Health). The supervisor should contact the University Physician with questions regarding this issue.

2. Cholinesterase Testing

Biological monitoring of pesticide workers is important to determine the cumulative effect of these chemicals. Cholinesterase testing is the single most important tool in medical supervision of workers using organophosphate and carbamate pesticides. It provides indirect monitoring of the workplace exposure of the employee group as a whole, and can detect potentially serious individual exposures before the occurrence of clinical illness. Plasma and RBC cholinesterase enzymes are used for monitoring this effect. Rutgers program for cholinesterase monitoring will be administered as follows:

a. A pre-exposure baseline must be determined for each worker using cholinesterase-inhibiting pesticides against which later values can be compared. All baseline tests should be taken when the worker has had no exposure to cholinesterase inhibitors for at least 30 days.

b. Pesticide applicators, including sprayers, mixers, loaders, flaggers, and formulators, and other people who use Organophosphate and Carbamate pesticides for research, testing or any other purpose, must undergo cholinesterase (ChE) testing (plasma and erythrocyte). These tests require that blood samples be taken periodically, and whenever the need arises (i.e., in cases of sudden, unintended, accidental, acute exposure, or any symptoms of pesticide poisoning) throughout the period of exposure, as detailed in the attached exposure monitoring guidelines.

c. Research workers, including faculty, students, and staff who use cholinesterase inhibiting pesticides in trace amounts and whose work does not involve exposures described above, must undergo pre-exposure baseline testing. Follow-up tests should be done as need arises.

d. Pesticide workers who do not use cholinesterase-inhibiting pesticides are not required to take regular blood tests. However, if they change their job duties to include the use of cholinesterase inhibiting pesticides, they shall be included in the program.

e. Only individuals who participate in the monitoring program, as required, are permitted to work with cholinesterase inhibiting pesticides. Any employee who does not participate, as required, is prohibited from mixing, loading, formulating or applying these materials.

f. Blood testing can be arranged through Occupational Health at the Hurtado Health Center. Newark and Camden users must contact their respective student health centers for blood tests.

D. Storage and Inventory

1. All pesticides are to be stored in accordance with the applicable state and federal regulations. The following guidelines for the proper storage of pesticides shall be observed:

a. Pesticides must be stored in their original containers and must be labeled with the name and concentration of the pesticide as well as proper warning and safe use instructions. Labels must not be removed, defaced, obscured, altered, rendered unreadable or otherwise damaged beyond use or recognition.
b. Containers of pesticides, or those contaminated by residues of pesticides, must, when unattended, be stored in a well-ventilated, dry, secure and locked storage area.

c. Storage areas must bear prominently displayed warnings in English and any other language(s) deemed necessary due to the ethnic majority of that area.

d. Local fire departments are informed by REHS of the location of all pesticide storage areas and are provided a survey list of pesticides stored at that location. List must be updated annually. Fighting a fire that includes smoke from burning pesticides can be extremely hazardous to firefighters. Firefighters should be cautioned to avoid breathing any smoke from such a fire. A fire with smoke from burning pesticides may endanger the people of the immediate area or community. The residents of these areas may have to be evacuated if the smoke from a pesticide fire pose a health hazard.

2. An inventory of all pesticides must be updated annually and shall be maintained at a readily accessible place other than the storage site. An updated inventory list must also be submitted annually to Rutgers Environmental Health & Safety (REHS) Department by April 1 of each year.

III. RECORD KEEPING

A. Supervisors shall maintain records of pesticide applications in accordance with applicable state and federal regulations. Records shall include the date and place of application, type of pesticide, dosage and rate of pesticide used, and the name of the pesticide applicator.

B. The University Occupational Health Physician shall maintain medical records of physical examinations and cholinesterase monitoring. Records shall be available for inspection upon written request.

C. REHS shall maintain training records for Right-to Know, respiratory protection and fit testing.

For further details, contact REHS at (732) 445-2550.

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