



BIOTERRORISM

**A Lesson Plan
developed for
Teachers of Agriculture**

This lesson plan is designed to assist teachers in guiding the learning process in students as they learn more about the bioterrorism and how to be prepared for any emergency. As with any lesson materials that are not prepared by the teacher who uses them, this lesson plan serves only as a guide. Teachers must adapt, supplement, and/or alter this suggested plan according to their expertise and to the local needs, interests, and expected outcomes of the students who are in that classroom. Only in this way will the instruction given meet the needs of the students, school, community, and state in which the students live and the teacher works.

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BIOTERRORISM

Lesson Title: Bioterrorism: Implications for Terrorism in the Agriscience Industry

Terminal Objective: To prevent or respond to acts of terrorism within the agriscience industry

Enabling Objectives: Given a lesson on bioterrorism with specific implications to the agriscience industry, students will be able to:

1. develop a working knowledge of the terminology associated with terrorism;
2. describe the mission of the Department of Homeland Security;
3. recognize the five threat levels;
4. assemble an emergency kit;
5. prepare a plan to be followed in an emergency;
6. describe examples of bioterrorism;
7. describe examples of bioterrorism in agriscience; and
8. prepare a plan for deterring agroterrorism.

. The teacher is encouraged to add his/her own enabling objectives that would take into account local situations or the need to add additional content information not provided within this lesson outline.

References, Equipment, Instructional Aids, and Related Web Sites

NOTE: *Teachers should use professional judgment in the selection and use of web sites. Web sites change over time and thus, the relevancy and accuracy of information contained on these sites will change as new information and situations develop in the area of bioterrorism.*

<http://www.dhs.gov/dhspublic/display?theme=29> - Homeland Security web site for explanation of threat levels

<http://www.ready.gov/america/beinformed/index.html> - Information on how citizens can become informed on homeland security issues, policies, and practices

<http://www.ready.gov/america/beinformed/biological.html> - an informational source describing characteristics of a biological threat and what you can do to protect yourself

<http://www.ready.gov/america/beinformed/chemical.html> - an informational source describing characteristics of a chemical threat and what you can do to protect yourself

<http://www.ready.gov/america/beinformed/explosions.html> - an informational source describing characteristics of an explosion threat and what you can do to protect yourself

<http://www.ready.gov/america/beinformed/nuclear.html> - an informational source describing characteristics of a nuclear threat and what you can do to protect yourself

<http://www.ready.gov/america/beinformed/radiation.html> - an informational source describing characteristics of a radiation threat and what you can do to protect yourself

<http://www.whitehouse.gov/homeland> - home page for the Department of Homeland Security

<http://www.whitehouse.gov/homeland/contactmap.html> - state by state listing of the person responsible for homeland security within that state

<http://www.ready.gov/america/getakit/index.html> - an overview of five kits for families to have in the event of an emergency

<http://www.ready.gov/america/getakit/cleanair.html> - information on taking action to provide a safe and clean air supply

http://www.ready.gov/first_aid_kit.html - a suggested kit for emergencies where first aid is needed

<http://www.ready.gov/america/getakit/disabled.html> - a suggested checklist needed for emergencies for people with special needs

<http://www.ready.gov/america/makeaplan/index.html> - a suggested planning source for ideas to make family and evacuation plans in a disaster

<http://www.ready.gov/america/makeaplan/index.html> - elements of plan for a family in case of an emergency

http://www.ready.gov/america/makeaplan/work_school.html - suggestions for finding oneself at work or school when disaster strikes

http://www.ready.gov/america/makeaplan/moving_vehicle.html - suggestions if one is in a moving vehicle during a disaster

<http://www.ready.gov/america/makeaplan/highrise.html> - suggestions if one is in a high rise building during a disaster

<http://www.workthreat.com/current.html> - a brief treatment of agroterrorism

<http://www.usda.gov/factbook/chapter1.htm> - a discussion of Homeland Security and its role in protecting the food supply chain

<http://www.nadc.ars.usda.gov> - the National Animal Disease Center at Ames, Iowa focuses on studying the control of animal diseases

<http://www.ars.usda.gov/plum/> - the USDA Animal Disease Center in New York

<http://www.ars.usda.gov/> - the Agricultural Research Service of USDA responsible for research related to the agricultural industry

<http://www.agctr.lsu.edu/eden> - the Extension Disaster Education Network highlighting the latest information about disaster relief and assistance

<http://www.bt.cdc.gov/index.asp> - The Center for Disease Control web site for agents of disease potential

<http://www.bioterrorism.slu.edu/> - Saint Louis University Center for the Study of Bioterrorism

Gwazdauskas, F. C. (2002) "Bioterrorism: Past and Present Perspectives on Bioterrorism and Implications for Agriculture." **The Virginia Dairyman** 66, (11), pp. 12-14.

Gwazdauskas, F. C. (2002) "Bioterrorism: Preparedness for Acts of Bioterrorism and Implications for Agriculture." **The Virginia Dairyman** 66, (12), pp. 19-20.

Gwazdauska, F. C. (2003). "Bioterrorism: Biosecurity Suggestions for Animal Agriculture." **The Virginia Dairyman** 67, (1), pp. 8-9.

Lesson Plan Color Code

GREEN – Suggestions to the teacher of teaching approaches, teaching techniques, instructional aids, or other ideas that the teacher might find helpful in teaching this lesson. Space is also adequate for teacher notes.

BLUE – Web sites that provide information, knowledge, or background that relate to the Enabling Objectives for the lesson. In some cases, the teacher can use the web sites to prepare for the lesson, in other cases; the students can go to the web sites for basic information or further reading.

RED – Questions a teacher can pose to the students or they can be used to guide the teaching process. Question numbers relate back to the number of the Enabling Objectives found at the beginning of the lesson.

Introduction: The following ideas are possible suggestions for introducing this lesson topic.

1. Bring in a recent newspaper clipping describing an act of terrorism.
2. Ask students why they think people perform acts of terrorism on others?
3. What happens when an act of terrorism occurs?
4. How would the students feel if somebody destroyed their homes? Cars? Businesses? Livestock? Pet(s)?

As a transition into this lesson, the teacher may refer to a recent event that was an act of terrorism for an example of how terrorists can impact a country, individuals, society, and/or a feeling of security

NOTE: *The teacher should reassure students that the purpose of teaching this unit is not to create fear or raise undue concern in students, but to help them understand forces at work in contemporary society and the responsibility that citizens should accept to help prevent such acts. Furthermore if students ever experienced such acts, they should be aware of what actions would be appropriate to protect themselves, others, and/or the food supply chain.*

TEACHING OUTLINE

Methods/hints/aids
Teacher notes

Technical/subject matter content

1. What are some terms that are currently used or associated with terrorism?

Students look in dictionary

Terrorism – the act of causing fear in people through threats, force, or other actions that will demoralize, intimidate, or place people under the control of terrorists

<http://www.bioterrorism.slu.edu/>

Bioterrorism – using biological agents for the purpose of carrying out acts of terrorism

Agroterrorism – acts of terrorism directed toward any part of the food supply chain

<http://www.ready.gov/america/beinformed/biological.html>

Biological attack – use of germs or other biological substances for the purpose of creating terrorism through human sickness or making the food supply unsafe

<http://www.ready.gov/america/beinformed/chemical.html>

Chemical attack – use of a toxic gas, liquid, or solid for the purpose of creating terrorism through the poisoning of humans or the environment

<http://www.ready.gov/america/beinformed/explosions.html>

Dirty bomb – use of common explosives to spread radioactive materials over a targeted area. Could also be called a **radiation attack**. A dirty bomb is not the same as a nuclear blast.

<http://www.ready.gov/america/beinformed/nuclear.html>

Nuclear blast – an explosion with intense light and heat, a damaging pressure wave and widespread radioactive material that can contaminate the air, water, and ground surfaces for miles around

<http://www.ready.gov/america/beinformed/radiation.html>

Radiation threat – use of common explosives to spread radioactive materials over a targeted area. Could also be called a dirty bomb, not a nuclear blast,

but rather an explosion with localized radioactive contamination.

2a. What is the Department of Homeland Security?

It is the **Department of Government** responsible for keeping the citizens and territory of the U.S. **safe** from any acts of terrorism or other situations that would compromise the future and/or safety of the country

2b. Who is the person within our state who has the responsibility for homeland security?

Assign students to check the web site below for the person in their state

<http://www.whitehouse.gov/homeland/contactmap.html>

3a. What are the five threat levels developed by the Government?

3b. What do these levels mean?

3c. What is the Government's role at each level?

3d. What is an individual's role at each level?

<http://www.ready.gov/america/beinformed/index.html>

<http://www.dhs.gov/dhspublic/display?theme=29>

GREEN – low condition, a **low risk** of terrorist attacks. The lowest level.

Government's Role – **Train** personnel on the Homeland Security Advisory System and **ensure** all facilities and regulated sectors are regularly assessed for vulnerabilities to terrorist attacks

Individual's Role – **Develop** a household **disaster plan** and assemble a disaster supply kit

BLUE – guarded condition, a **general risk** of terrorist attacks

Government's Role – **Review and update** communication and emergency response procedures and provide the public with information that would strengthen its ability to act appropriately

Individual's Role – **Update** disaster **supply kit** and review household disaster plan, perhaps develop a more detailed household communication plan

YELLOW – elevated condition, a **significant risk** of attacks

Government's Role – Increase **surveillance** of critical locations; implement, as appropriate, contingency and emergency response plans

Individual's Role – Be **observant** of suspicious activity and report it to authorities; become familiar with school emergency plans and how children are reunited with their families; and update the household communication plan

ORANGE – high condition, a **high risk** of terrorist attacks

Government's Role – **Coordinate** necessary security efforts with federal, state, and local law enforcement; take additional precautions at public events and facilities and restrict access if necessary

Individual's Role – **Review** preparedness measures for potential terrorist actions including chemical, biological and radiological attacks; exercise caution when traveling

RED – severe condition, a **severe risk** of terrorist attacks. The **highest level**.

Government's Role – **Increase or redirect** personnel to address critical emergency needs; mobilize specially trained teams or resources; monitor, redirect or constrain transportation systems; close public and government facilities not critical for continuity of essential operations, especially public safety

Individual's Role – **Avoid** public gathering places that could be high risk locations; follow official instructions regarding high risk locations; contact employer to determine status of work; **listen** to the radio or TV for possible advisories or warnings;

prepare to take protective actions if instructed to do so by public officials

4a. What are five separate kits that a family might prepare to use in an emergency?

<http://www.ready.gov/america/getakit/index.html>

**Water kit
Food kit
Clear air kit
First aid kit
Supply kit**

4b. What are the guidelines and components of a water and food kit for the home?

Assign students to go to the web site and prepare a water and food kit for the home

Water

Keep **at least** a three-day supply of water per person

One gallon of water **per person per day**, for drinking and sanitation

Children, nursing mothers, and sick people may need **more** water

If you live in a **warm** weather climate **more** water may be necessary

Store water tightly in clean plastic containers such as soft drink bottles

Store Food

At least a three-day supply of non-perishable food

Select foods that require **no refrigeration**, preparation or cooking and little or no water

Pack a **manual can opener** and **eating utensils**

Choose foods your family will eat

Ready-to-eat canned meats, fruits and vegetables

4c. What are the components of a clear air kit?

<http://www.ready.gov/america/getakit/cleanair.html>

Assign students to locate local businesses where the items could be purchased Create a **barrier** between you and the contamination

Face mask for nose and mouth protection

Shelter in place

Filter fans

Portable **air purifier**

4d. What are the components of a first aid kit?

http://www.ready.gov/first_aid_kit.html

Assign students to assemble a first aid kit for home use Items that are required to treat **cuts, burns** and other injuries

Items that would be **good to have**

Non-prescription **drugs**

4e. What special supply checklists should be made for emergencies?

Assign students to develop a checklists of things needed for their household **Items** that would make any emergency situation more comfortable

Basic supplies

Clothing and bedding

Tools

Sanitation needs

Important family **documents**

4f. What are some considerations for those who have special needs?

<http://www.ready.gov/america/getakit/disabled.html>

For those students with homes where people with special needs live, ask them to develop a checklist of items needed to meet the needs of these family members

For **infants** and **children**

For the **elderly**

For those **disabled**

5a. What plans should individuals make for reacting in case a terrorism act occurs?

Families should **plan in advance** for any possible disaster, whether related to terrorism or not

Emergency planning would involve **consideration** in the **following areas**

5b. What would be included in a family disaster plan?

<http://www.ready.gov/america/makeaplan/index.html>

How family members could **contact** one another

Emergency telephone numbers

Important **medical information**

Critical **medicines**

Assuring that the needs of people with **special needs** can be met

Assign students to go to the following web site and download the form for making a family plan. Ask them to complete the form and talk with their parents about the form and where it should be filed.

5b. What are some factors to consider in an evacuation plan, if needed?

Whether to **stay put, not moving**

Developing a “**shelter in place**” location

Students can be referred to this site if a “shelter in place” location is to be built

Deciding to **get away**

Students can be referred to this site if they would like to develop evacuation plans

How to **shut off** all utilities

Planning for **pets** (shelters will not take pets)

5c. What are some considerations in places of work or school?

http://www.ready.gov/america/makeaplan/work_school.html

Methods of **communication**

Ample supplies of **food and water**

Prepared **emergency kits**

Adequate **heat, ventilation**

5d. What are some suggestions if a person is in a moving vehicle and a disaster occurs?

http://www.ready.gov/america/makeaplan/moving_vehicle.html

Be **aware** of **electrical lines**

Avoid bridges, overpasses, underpasses

Listen to radios for directions and up dates on the situation in the area

5e. What if people find themselves in a high rise building?

<http://www.ready.gov/america/makeaplan/highrise.html>

Avoid elevators

Stay away from windows

Seek protection under desks/tables

Be **aware** of emergency exits

6a. What is bioterrorism?

Refer back to the content in **Question 1**.

Bioterrorism – using biological agents for the purpose of carrying out acts of terrorism

6b. What are examples of bioterrorism?

<http://www.bt.cdc.gov/index.asp>
<http://www.bioterrorism.slu.edu/>

Examples are numerous

Bacteria/viruses/fungi/biological toxics/parasites to **spread diseases**, e.g. anthrax, smallpox, cholera

Bacteria to **contaminate water**

Introduction of **infectious human diseases**

Release of **chemical weapons**, e.g. nerve gas, mustard gas, chlorine gas, cyanide gas

Tampering with medicine

Polluting air

6c. How quickly could effects be noticed in a terrorism attack?

Biological attack – noticeable effects take longer due to the incubation period and environmental factors e.g. wind speed and direction, time of day

(sunlight contributes to the decay of biological agents), and temperature

Chemical attack – noticeable effects can occur quickly

7. What are examples of bioterrorism in agriscience, or as some would call it “agroterrorism?”

Introduction of foreign pests, including parasites

Introduction of infectious animal/plant diseases/viruses, e.g. BSE (Mad Cow disease), Foot and Mouth disease, Avian Influenza, brucellosis, plague, African Swine fever, Newcastle, hog cholera
Improper use of ammonium nitrate or urea fertilizer

8a. What are the components of a biosecurity plan to deter acts of agroterrorism?

The teacher might assign the students to develop an individual biosecurity plan for their farm/ranch, business, or personal use, based on the uniqueness of their situation. The content in the following section is only a highlight of the information at these web sites that might be in a plan.

<http://www.workthreat.com/current.html>

<http://www.usda.gov/factbook/chapter1.htm>

<http://www.agctr.lsu.edu/eden/>

Recognize and anticipate security issues before they surface

Facility security

- adequate lighting
- secure fencing
- controlled gate access
- electronic security devices
- use industrial designed door hardware
- secure access to outside storage bin/tank doors
- lock vehicles
- store containers/boxes in secure warehouse

- request law enforcement patrols during evenings/weekends
- encourage employees to be vigilant
- secure computer systems
- plan for security when new construction planned

Visitor policy/procedures

- all visitors check in
- post signs as needed
- limit/restrict access as appropriate
- maintain records of visitors/companies
- use visitor badges, if appropriate

Ingredient integrity

- purchase from approved suppliers
- request reports on quality assurance
- certify vehicles for transporting products
- secure trucks/containers once loaded
- inspect seals for possible tampering
- maintain receiving log receipts

Distribution/transportation security

- inspect vehicles/containers before loading
- inspect product stream during loading/unloading
- secure/seal load once loaded
- provide shipping documents for all shipments
- maintain shipping log
- implement a biosanitation program -disinfect all vehicles entering or leaving premises

General housekeeping practices, including

- pesticide/rodenticide programs
- prepare a housekeeping program
- conduct routine/regular inspections
- document each treatment/occurrence
- plan for regular pesticide treatment as needed and appropriate

Employee selection and training

- require completed job applications
- conduct background checks
- use drug/alcohol testing, if appropriate
- use probationary employment period, if appropriate
- train employees to recognize suspicious/abnormal activities

train employees for emergencies
provide in-service training as needed

Emergency response procedures, including
contact with local law enforcement and fire and
emergency agencies
maintain inventory of all hazardous/flammable
products
post emergency contacts/telephone numbers in
appropriate locations
prepare evacuation plans
maintain visitor log
conduct evacuation/emergency drills
prepare maps/instructions for emergency shut
off systems, valves, switches

Regular risk analysis reassessment
at regular intervals, reassess potential risks
secure outside professional input when needed

Procedures/clearances for release of
any information
identify individuals authorized to release
information
list examples of types of information that
can be released
evaluate every request for information
verify all telephone inquiries

Provision for the safe keeping of data, files,
and other documents, as well as backup
systems
identify who has access to computers
provide for locking computer or data
systems
provide backup systems for emergencies/
fires or other disruptions

**8b. What government agencies have
responsibilities to help conduct and fund
research projects aimed at the protection of crops
and livestock?**

**The teacher may assign students to go to
one of the following web sites to discover
current research activities and projects**

**underway to protect crops and livestock.
Report back to class.**

<http://www.nadc.ars.usda.gov/>
<http://www.ars.usda.gov/plum/>
<http://www.ars.usda.gov/>

Summary

1. Daily summaries should be held at the end of every class.
2. Emphasis should be placed on the important content discussed or presented each day, with focus on helping students learn the material needed for each enabling objective covered.

Plans for Application

1. Students could be assigned to develop a biosecurity plan for their farms/ranches, businesses, or personal use. They should be encouraged to work with their parents and/or employers as appropriate and share with the class when a plan has been devised.
2. Throughout this lesson, various topics involved the development of safety kits, disaster plans, or checklists that would enable a person to act responsibly in the case of a disaster related to terrorism or any other emergency. Students could assemble any of these kits.
3. This topic could also be an area the FFA Chapter could embrace as one of their community service projects.
4. Individuals could be assigned to investigate various web sites and prepare an oral presentation to be given in class.

Evaluation

1. Daily quizzes or end of the lesson exams could be given.
2. Any products produced, for example checklists, safety kits, biosecurity plans, or papers prepared could be evaluated as part of the expectations for this unit.