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GROWING A NEW GENERATION
OF ILLINOIS FRUIT AND VEGETABLE FARMERS

PREVENTING VERTEBRATE PEST DAMAGE

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Local Food Systems and Small Farms

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Illinois Migrant Council

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Today's Objectives

- Understand wildlife nuisance management options for growers
- Understand legal implications of wildlife nuisance management
- Learn characteristics of common IL mammal species which can cause fruit and vegetable crop damage/and prevention of damage
- Understand integrated pest management for nuisance wildlife management

What kind of animal is causing the damage?

Is the damage seasonal or year round?

Will the control program impact other species or the environment?

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Nuisance Wildlife Control Options

- Population reduction
- Habitat modification
- Exclusion
- Repellents
- Frightening Devices

Integrate multiple strategies !!!!

Population Reduction

Step one = permit

Department of Natural Resources in your state

Wildlife Protected by:

State Wildlife Codes

Federal Migratory Bird Treaty Act

Property owners do not own the wildlife !!!!

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Population Reduction

Options:

*Seasonal Hunting

*Trapping

Live traps

Lethal

*Toxicants

Limited Use

Population Reduction – Live Trapping

May be necessary for "problem animals"

<u>Problems with this strategy:</u>

* Short-term fix
* Carrying Capacity

  Amount of Food, Water, Shelter = number of animals area can support

* Release of live captured animals
* Very Expensive

Population Reduction –

Reduce total population

Reducing the population will reduce the effort required to control nuisance damage

Accomplished through recreational hunting and trapping.

Principles of Habitat Modification

Goal: Decrease the amount Food, Water, or Shelter

Examples:

* Remove pruned branches/brush piles
* Mow tall grass or brushy areas

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Exclusion

Fencing - protection

* Individual plants

* Planting areas

Fencing = Expensive Option !!

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Repellents

* Must be registered for use on species
* Regulated as a pesticide

Types

* Taste repellents
* Olfactory - Area
* Tactile - birds

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Repellents: Positives and negatives

Pros:* Can offer protection during periods of plant dormancy, or when damage needs to be limited during fruit set, ie sweet corn pollination.

Cons:* Can be an expensive technique if year-round use is necessary

* Many products don't weather very well

* Most products can not be applied to fruit and vegetable crops

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Frightening Devices

*Visual

*Sound

Frightening techniques have limited success

Effectiveness increases with:

* Variation of strategies

* Persistence with tactics

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Biology:

Short life span = 12-15 months

Ave. = 4 to 6 months

3 - 6 litters per year

Home range = 10 acres

Eastern Cottontail Rabbit

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Photo Credits: *Dallas Virchow*

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Exclusion from trees:

* Wire mesh 1 inch or less

* Individually protect trees less than 6 years old with wire mesh tree guard at least 1.5 feet tall

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Repellents:

Products containing the fungicide Thiram, use limited to ornamentals

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Habitat Modification

Remove tall grass areas or keep away from tree plantings, orchards and vegetable crop fields.

Pick up and remove drops in the orchard, mow grass short between rows, remove vegetation in the row, eliminate connections to adjacent woodlands, pastures, and "old field" sites

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Population reduction

Trapping: Need permit to trap!!!!!

Removal of problem animals in the winter can be effective in reducing urban populations.

Hunting:

Rabbits are an Upland Game species in Illinois, with an annual hunting season Nov.- Jan., an IL hunting license is required.

Removal of rabbits through trapping and hunting may reduce the current population,but may not reduce it the next season.

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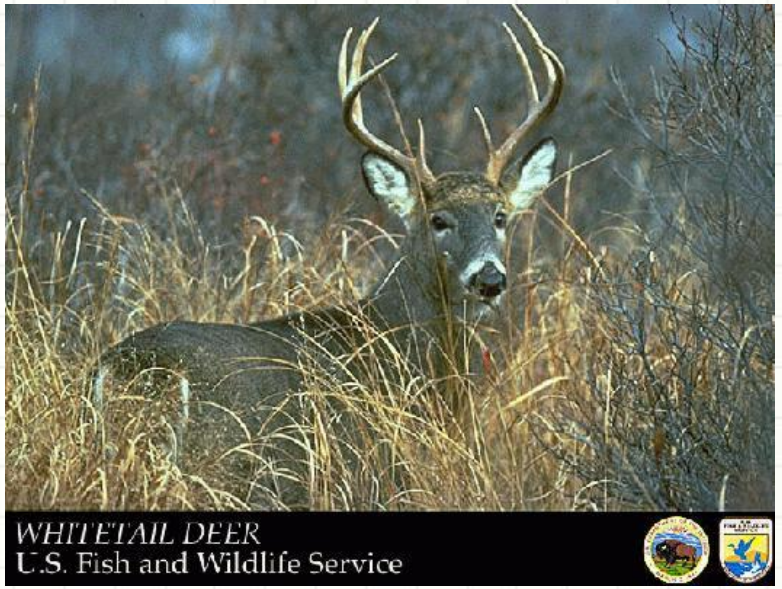
White-tailed Deer



Average home range:

does 640 acres, bucks: 2000 – 3000 acres

Problems:

- Browsing of trees and shrubs
- Damage from antler rubbing
- Damage to strawberries, melons and other crops

Damage Identification

Deer browse
Photo Credits: *Dallas Virchow*

antler rubbing

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Protect new trees in the landscape and orchard during the fall from antler rubbing

Use tree protectors such as Vexar, Tubex, plastic tree wrap or woven wire cylinders to protect new plantings.

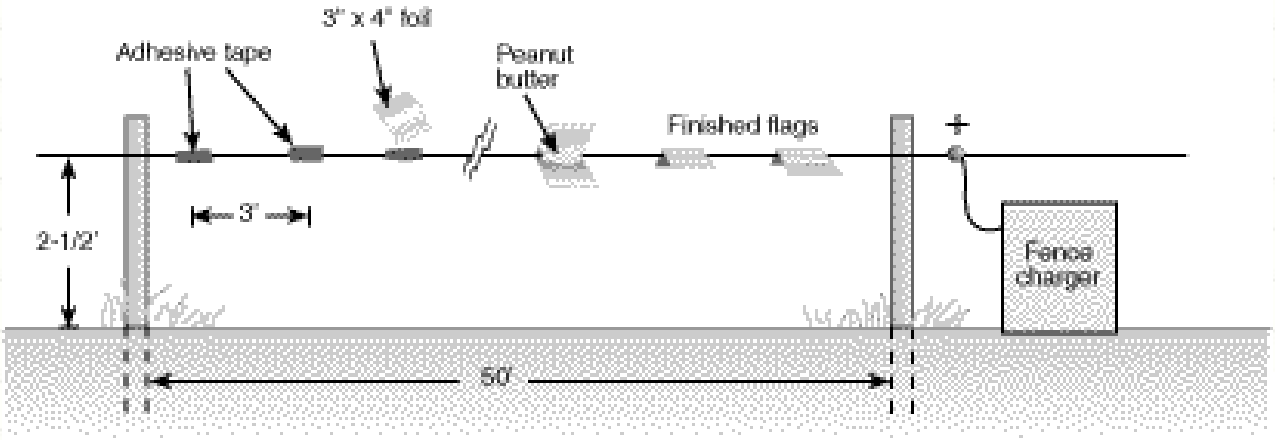
Exclusion from Area

Fencing (Expensive)

Protecting a high value crop

Cost projected over life of fence

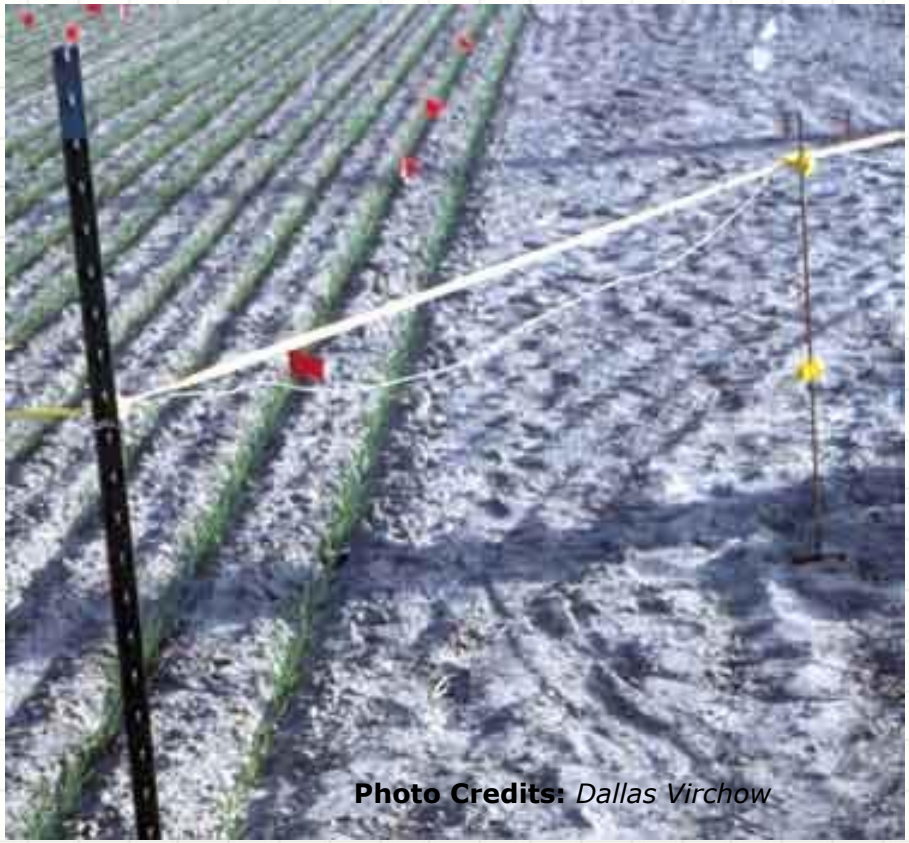
Low population design or temporary



Deer fences need to be visible to animals

Polytape materials

Maintain 6 to 12 foot clear area between fence and outside edge area



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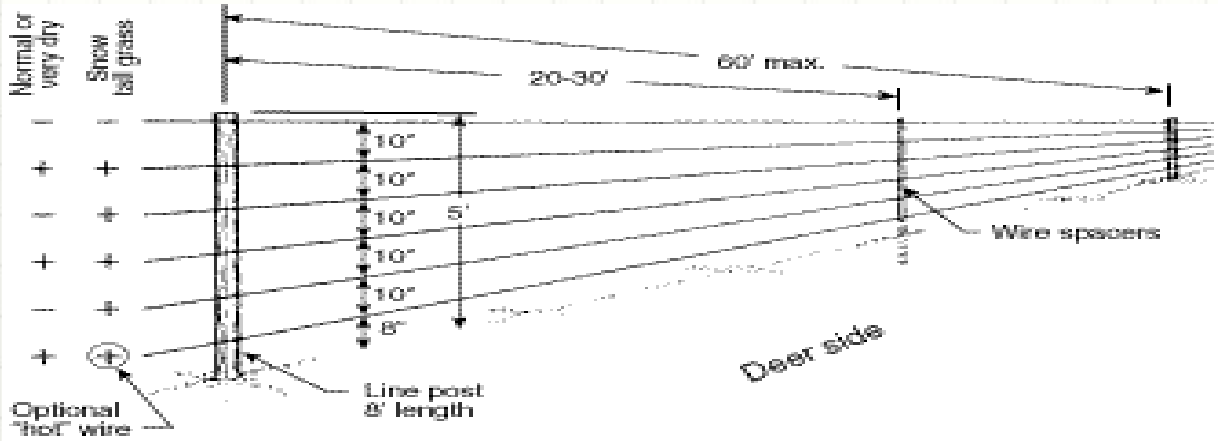
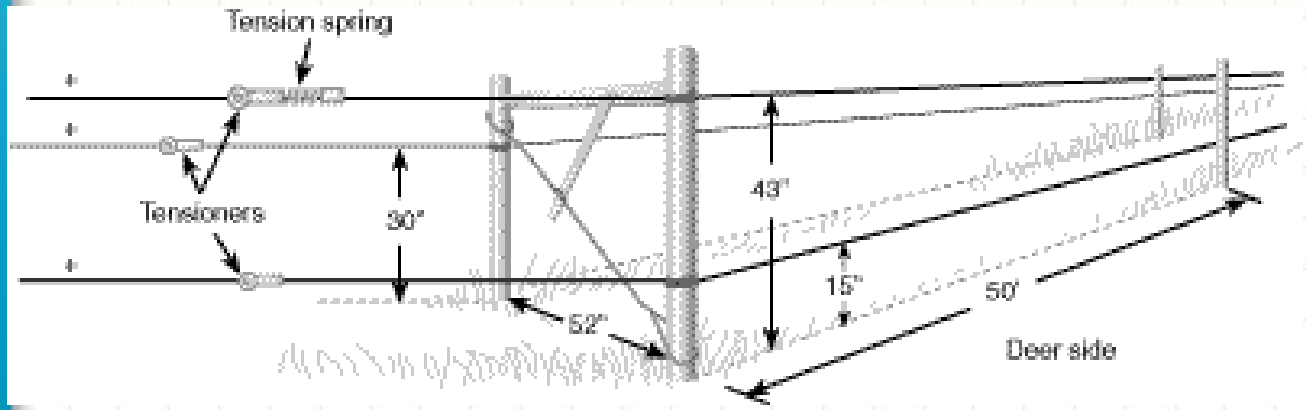


*Fence designs vary, dependent on population of deer and size of area to protect

*Electrify sections of fencing as constructed



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5.5 - 6 feet
Mike Roegge
OCT 25 2012


Mike Roegge
OCT 25 2012

Deer Fence Netting

New material

Use techniques to increase visibility

Taste Repellents

Usually high in cost with limitations

Examples (Active ingredients):

* Putrescent whole egg solids
* Thiram
* Capsaicin best with an anti-transpirant

Photo Credits: *Dallas Virchow*

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Area (odor) repellents: active ingredients

* Tankage (Putrefied meat scraps)
* Edible animal protein
* Ammonium soaps of fatty acids
* Human Hair bags (3 feet apart)
* Bar deodorant soap (3 feet apart)

Other Notes about Repellents

- Better suited for dormant trees and shrubs
- Repellents will most likely reduce, not eliminate damage
- Effectiveness also dependent on size of deer population, and availability of other palatable foods

Deer Population Management

Recreational Hunting

- Must reduce the number of females
- More effective when adjacent landowners cooperate

Nuisance population reduction

- Deer Removal Permit required, based on damage, contact your DNR biologist
- Often only a temporary solution

Habitat-vegetation management

Leave open areas between crop and woodland edges – 60 feet mowed

Use repellents and fencing near field edges

Forest management plans should include practices that promote abundance of young trees and shrubs for browse

Plant alternate food sources – food plots

Photo Credits: *NEBRASKland Magazine/Nebraska Game and Parks Commission*

Voles

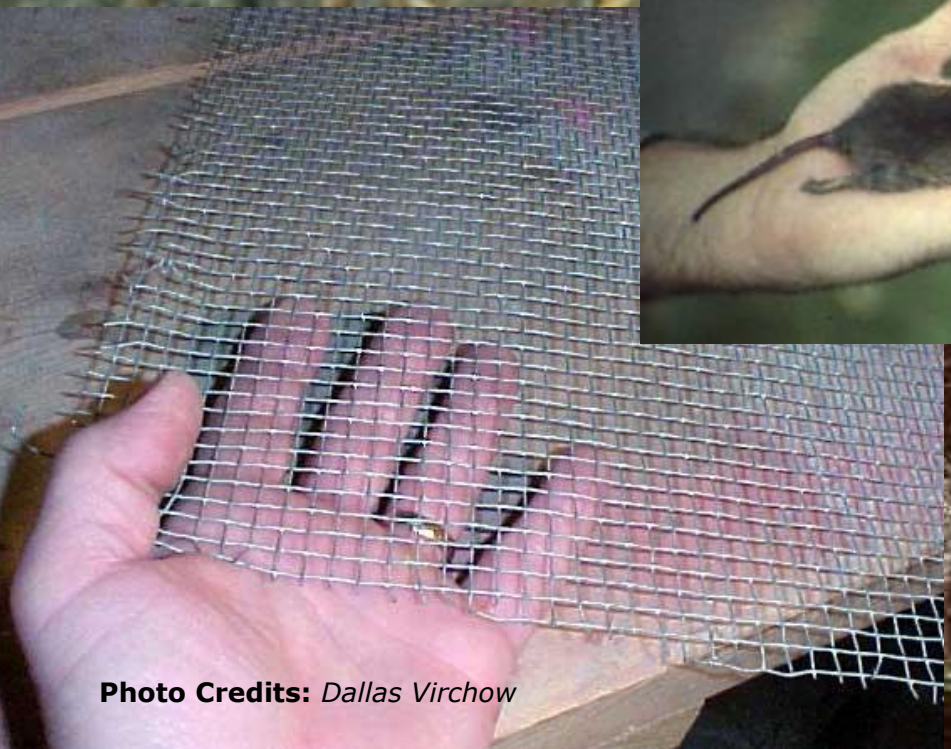

Photo Credits: *Dallas Virchow*

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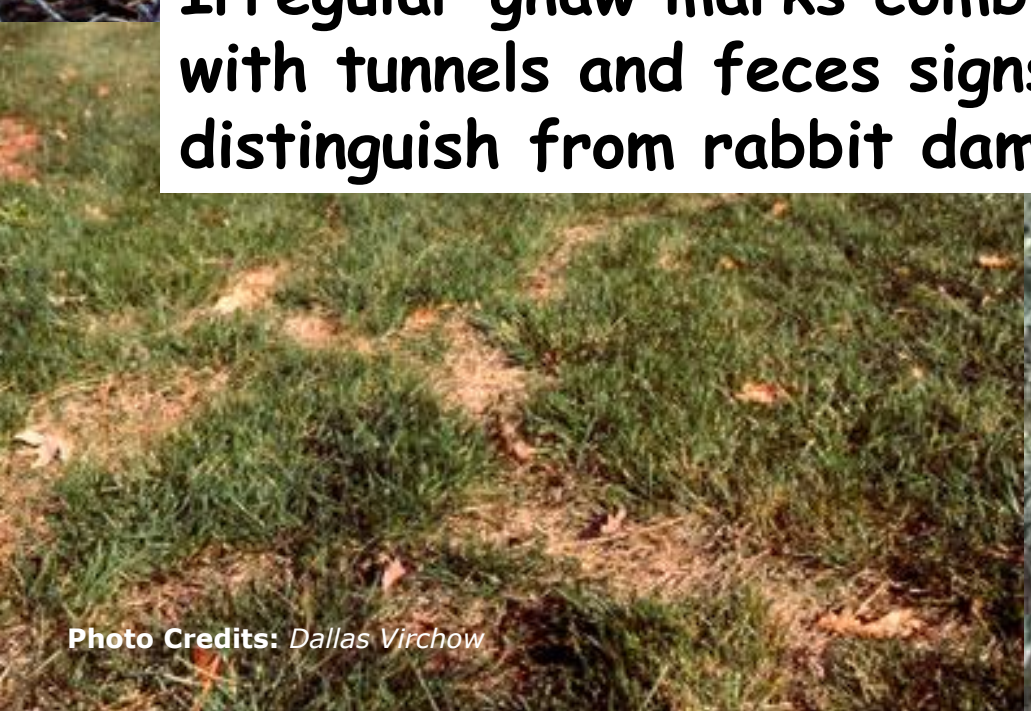
Damage ID

Irregular gnaw marks combined with tunnels and feces signs distinguish from rabbit damage



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Prairie and meadow voles

- Tail is 2 times longer than the hind leg
- Runways are on the soil surface
- Damage is seen above the ground on tree trunk

Pine voles

- Tail is as long as the hind leg
- Runways are usually underground
- Damage is below ground as bark removed from roots and base of trunk

Monitor the vole population - Apple Sign Test

30 monitoring stations per acre
3 rows of trees in orchard identified for test
10 stations per row , 30-40 feet apart

Shingles can be used but must be arched to allow voles to move under the shingle

5 days after placement, place $\frac{1}{2}$ inch cube of apple under shingle

Check apple slice 24 hours later

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Percent of apple slices with chewing evidence can give an estimate of potential damage

Monitoring stations help identify locations where vole damage is more likely

Conduct the test in the fall and spring and 21 to 30 days after rodenticide application

Toxicants

Zinc phosphide- pelleted and grain bait formulation, more effective against meadow voles, but has high toxicity to other wildlife, therefore care must be taken to avoid killing non-target species

Anticoagulant baits – Chlorophacinone more effective against pine voles, requires multiple feedings

Rodenticide application

Zinc phosphide can be broadcast applied into vegetated area, or used in a bait station within an orchard, but not on a continual basis as bait shyness may develop

Chlorophacinone can be used in a bait station over the winter to reduce the risk of re-infestation

Read and follow pesticide labels

Non-chemical practices

Mow between the rows and trees within orchards on a regular basis, especially early fall

Herbicide strip or circle around fruit trees out to the drip line

Maintain a "clean" buffer around the orchard or crop field to limit movement of voles from adjacent habitat

Construct predator (hawk and owl) perches on the farm. 10 to 15 foot pole with "T" top

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Raccoons

Very common and adaptable mammal in Illinois

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Exclusion of raccoons from crop fields is the most effective control to reduce or prevent crop damage.

Electric fencing can be used for exclusion

One wire 6 inches off the ground or a double wire with the second wire 6 inches above the first.

Fence chargers can be put on timers to turn on at dusk and off at sunrise

Fencing should be installed and charged prior to anticipated damage on sweet corn and melons

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Inspect buildings and make repairs prior to problems. Do not leave feed sources outside and close doors and windows prior to sunset.

Electric fencing can be used to exclude raccoons and other mammals in areas where permanent structural changes can not be made.

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Damage to buildings from raccoons

ICWDM.ORG & USDA/WS

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No toxicants, repellents or fumigants are registered for use to manage raccoons

Frightening:

Not effective for long periods of time to reduce damage

Groundhog/Woodchuck

Small home range: 50 to 150 feet

Control methods:

- Trapping
- Fencing: Woven wire/electric combination

- Gas cartridge in burrow - CAUTION

Birds *NOT* protected by state and federal laws include ……..

Starlings

Pigeons

House Sparrows

All other birds are protected by state and federal laws !!!!

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Exclusion from crops

*Exclude birds from area of damage with bird netting

*More successful if damage has just begun, feeding pattern not established

*Expensive and labor intensive, but may be necessary to reduce crop loss

Sapsucker damage can be extensive on select trees

Exclusion from feeding location on landscape trees.

May not be the best option for orchards, nurseries, etc. because damage is expanded

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Wildlife Damage Management Resources

* Living With Wildlife in Illinois, U of I Extension

http://web.extension.uiuc.edu/wildlife/

* Living With White-tailed Deer in Illinois, U of I Extension

http://web.extension.illinois.edu/deer/

* The Internet Center for Wildlife Damage Management, University of Nebraska-Lincoln

http://icwdm.org/

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Reasons nuisance control programs fail

- Use of only one management strategy
- Not enough monitoring for damage
- Animals have become accustom to using area
- Lack of "other" available food sources
- Lack of management plan or anticipation of seasonal damage
- Lack of persistence by landowner to change animal's behavior
- High population of problem animals

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Remember to use. . . .

an Integrated Pest Management approach

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To reach us

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