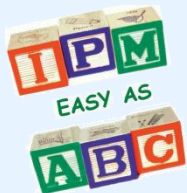


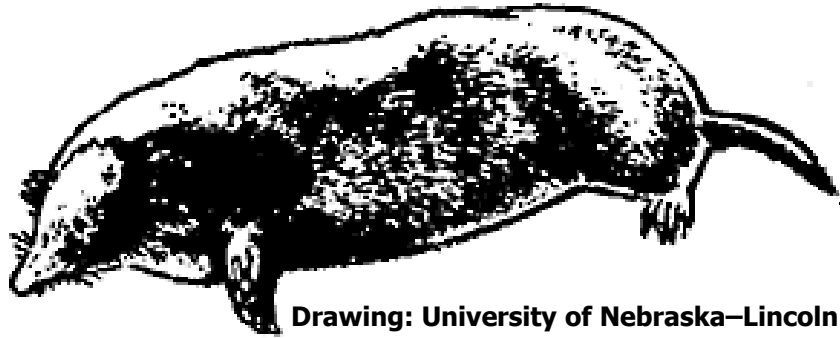


# Ground Invasion by Moles

Nebraska Extension



# Moles



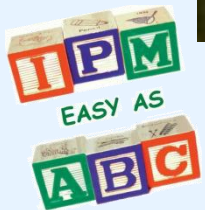
Drawing: University of Nebraska–Lincoln



Photo: Steve Hahus, All Wild About Kentucky's Environment



Photo: University of Nebraska–Lincoln

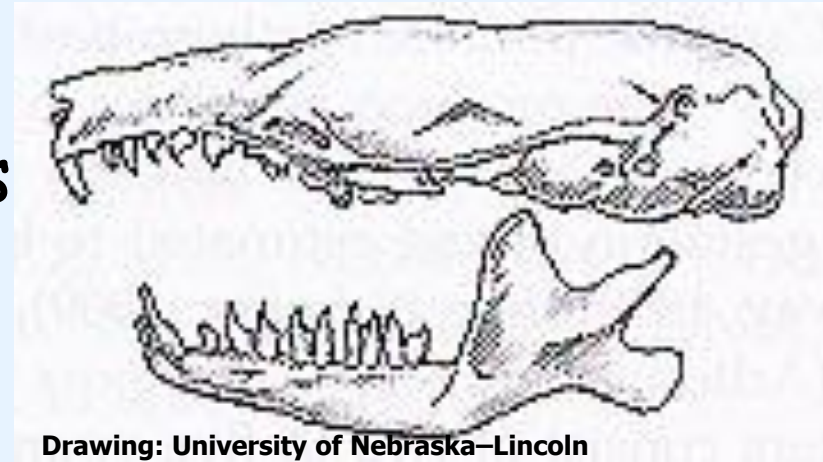


# Eastern Mole

- ❖ Short, velvet fur
- ❖ Black, gray, or brown
- ❖ 4-7 inches long
- ❖ Short tail
- ❖ Very small eyes and ears
- ❖ Long naked snout
- ❖ Wide mitt like front paws
- ❖ Large claws in front only
- ❖ Small pointed teeth



Photo: University of Nebraska–Lincoln



Drawing: University of Nebraska–Lincoln



# The Eastern Mole

## ❖ Life Style

- Tolerate low oxygen levels
- Fossorial--live underground

## ❖ Habitat

- Prefer moist, loose soil
- Prefer less disturbed areas

## ❖ Reproduction

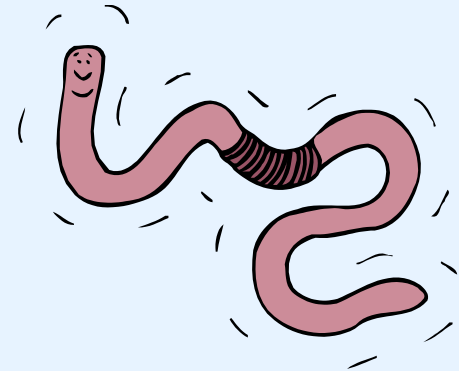
- Once/year (May-June)
- 2-5 young in deep nest



# The Eastern Mole

## ❖ Feeding

- Insectivorous
- 70% Earthworms
- Consume 45-50 lbs annually



## ❖ Foraging

- 50 -75 ft of surface tunnels per day
- Moist, shaded areas

## ❖ Movement

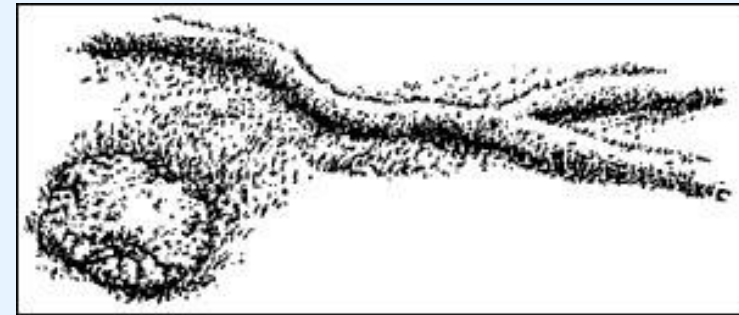
- Travel 80 ft per minute in burrows
- Males - 3A Females - 0.66A



# Mole Signs and Damage

## ❖ Burrowing

- Runs: Moles push up sod just under the surface; tear turf roots
- Mounds: Made when moles go deep, round and conical about 8" across and 6" high. Cover and smother grass
- Nests: In deep burrows 18-24" below the surface



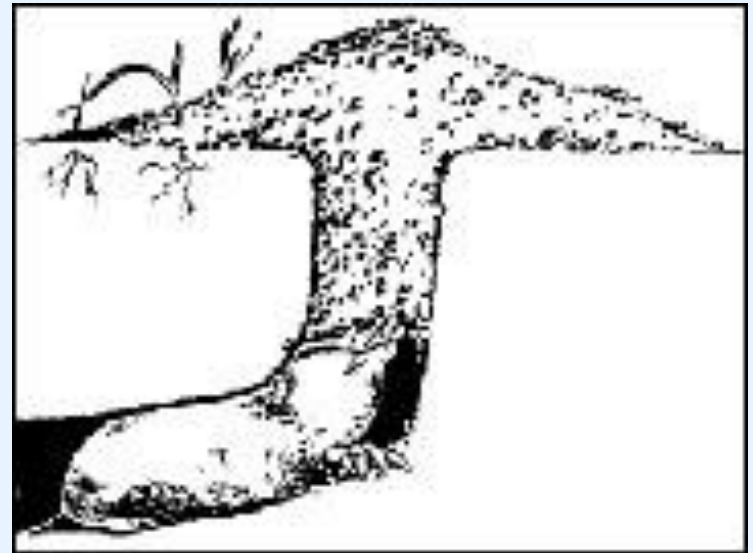
Drawing: University of Nebraska–Lincoln



# Mole Damage Identification

## ❖ Mole Mounds

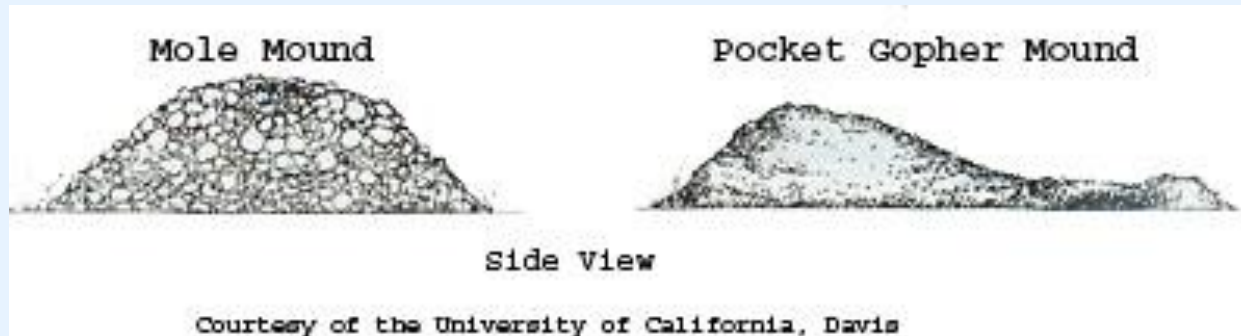
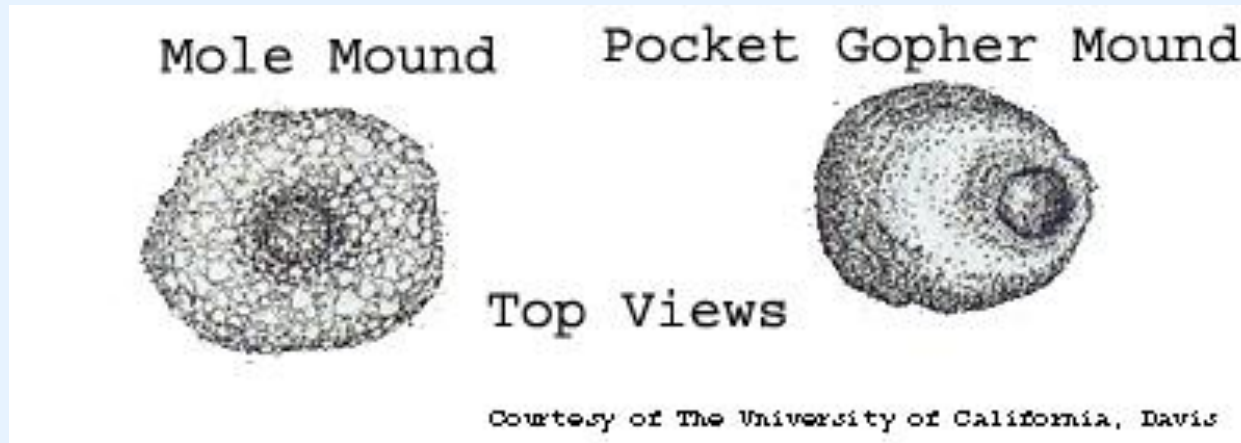
- Caused by moles digging deep tunnels
- They literally carry the dirt to the surface



Drawing: University of Nebraska–Lincoln



# Mole vs. Gopher Mounds





# Mole Damage Identification



## ❖ Runs

### ➤ Travel Runs

- ✓ Long
- ✓ Straight
- ✓ Connect feeding areas and living areas

### ➤ Feeding

- ✓ Short
- ✓ Crooked



# Mole Management

## ❖ Habitat Modification

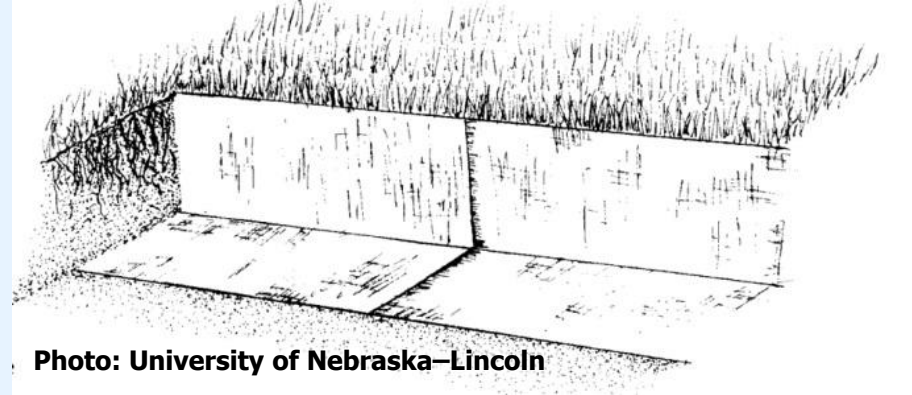
- Change the ground cover (crawling ivy, mulch etc.) so that mole activity isn't visible
- Reduction of grubs *MAY* work if the soil lacks sufficient number of other invertebrates such as worms and ants



# Mole Management

## ❖ Habitat Modification

- Install rocks, gravel, packed clay barriers: 24" deep
- Install fences or metal barriers: 24" into grade



# Frightening Devices

- ❖ Ultrasound and thumpers
  - No conclusive evidence they work

Photo: University of Nebraska–Lincoln





# Mole Management

## ❖ Repellents

- ✓ Odorous repellents, such as castor oil, must be applied often and watered in properly
- ✓ Vibration devices must be very strong and only cover a small area.

➤ Limitations: Efficacy of castor oil is disputed

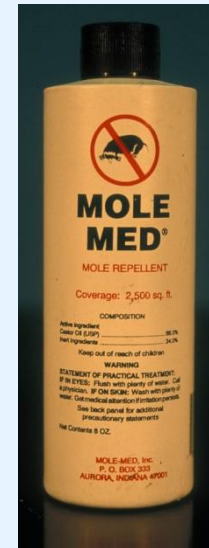
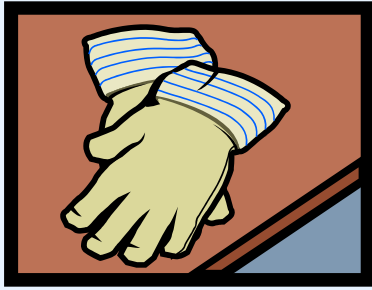


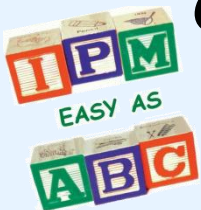
Photo: University of Nebraska–Lincoln





# Trapping Safety

- ❖ Wear appropriate safety equipment, such as gloves, when handling traps and animals
- ❖ Avoid setting traps in areas with high human/pet traffic
- ❖ Check traps daily. Don't set them if you can't check them the next day



# Mole Management

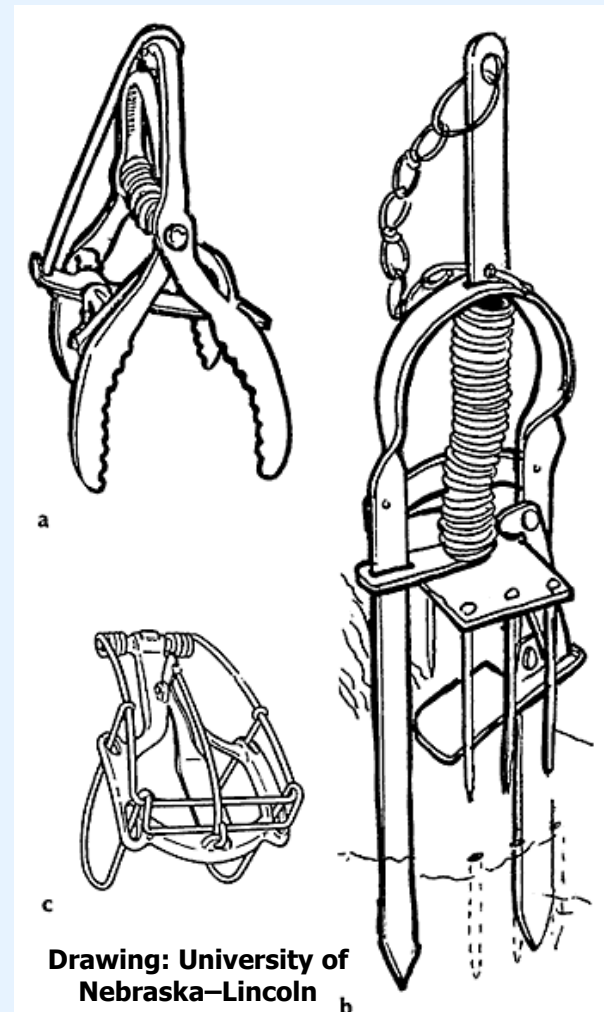
## ❖ Traps

- Many types of lethal mole traps
- Use on surface runs that are active and reappear
- Walk over all runs
- Place traps on runs the mole has reopened
- "Test fire" harpoon traps in non-sandy soils
- Trapping can be very labor intensive
- Extreme care must be taken when using traps



# Mole Control: Lethal

- ❖ Trapping: All the traps work
  - Trapping is extremely effective
  - Pesticide free



Drawing: University of  
Nebraska-Lincoln





# Mole Trapping Principles

- ❖ Use 3 or more traps/Acre
- ❖ Surface tunnels
  - Set the long (3ft or more) straight tunnels
  - Set the new tunnels
- ❖ Boils
  - Dig to the horizontal tunnel
  - Set the new boils



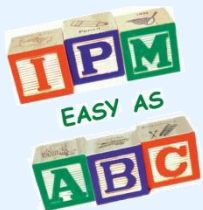
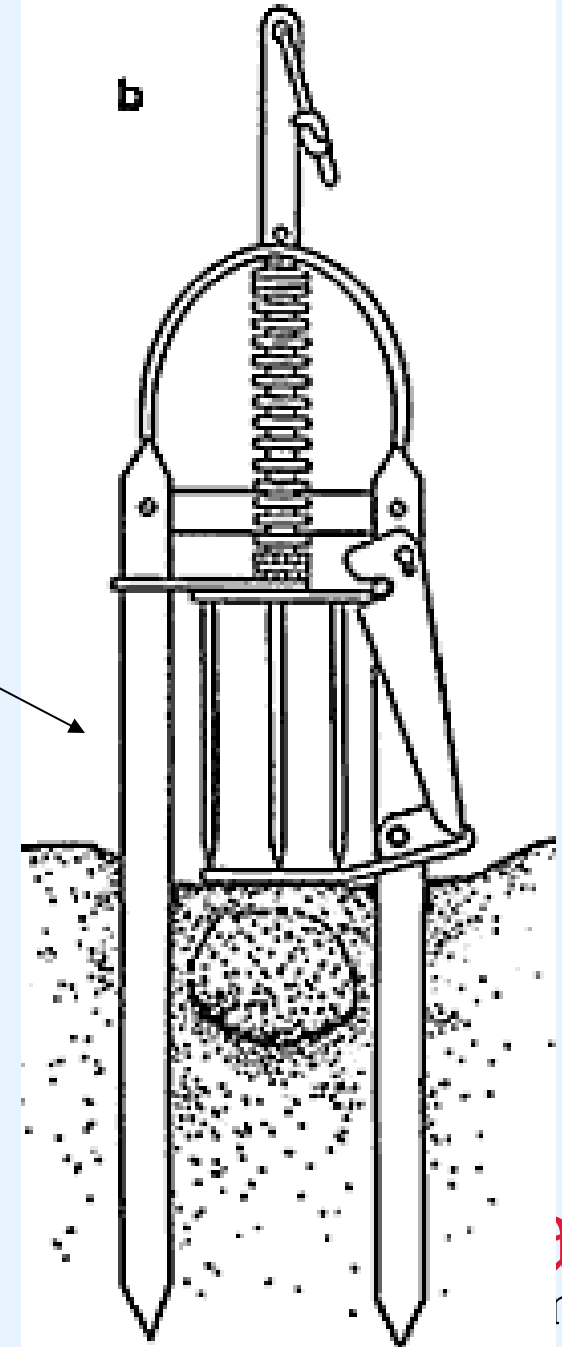
Photo: University of Nebraska–Lincoln



# Mole Trapping: Surface Runs

## ❖ Harpoon

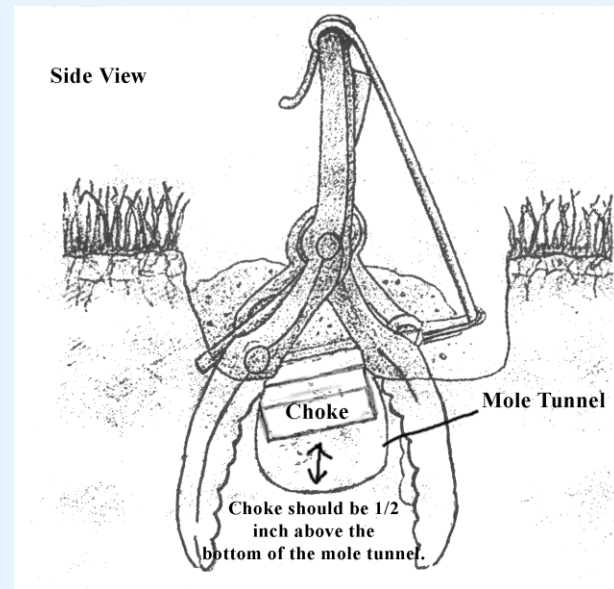
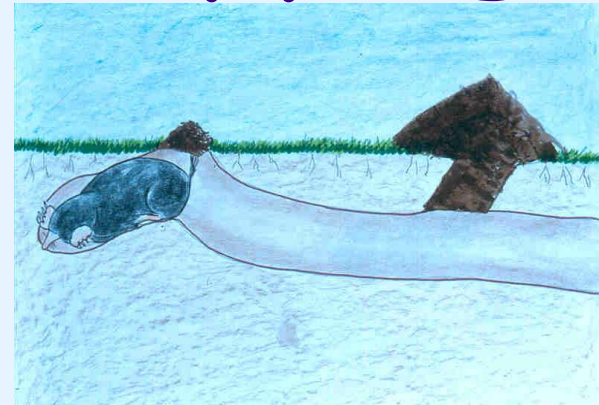
- Find the run
- Make sure trap legs don't invade the tunnel
- Depress only enough tunnel for the trigger
- Pre-form the time holes
- Set trap so tines are NOT above the soil
- Cover with 5 gal. bucket



# Mole Control Trapping Boils

## ❖ Scissor trap

- Dig to the horizontal tunnel
- Place jaws to straddle the tunnel
- Create barrier or install "woody"
- "Test fire" trap
- Reset and back fill trap, and flag it



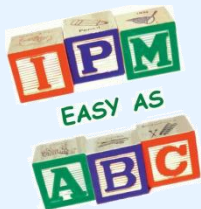
Drawings: Tom Schmidt



# Mole Control: Toxicants



- ❖ Follow Label Instructions
- ❖ THE LABEL IS THE LAW!



# Mole Control: Toxicants



Photo: University of Nebraska–Lincoln

## ❖ Toxicants: Fumigants

### ➤ Two types:

- ✓ Smoke or sulphur cartridges
- ✓ Phosphine gas pellets (Restricted Use Pesticide)

➤ Fumigants have the challenge of having to get the toxic gas through the mole's extensive tunnel system. Best used in deep tunnels, not surface tunnels



# Mole Control: Toxicants

## ❖ Toxicants: Baits

- Remember, moles feed on **LIVE** earthworms, so grain based baits will **NOT** work!
- The bait must smell and feel like an earthworm to the mole

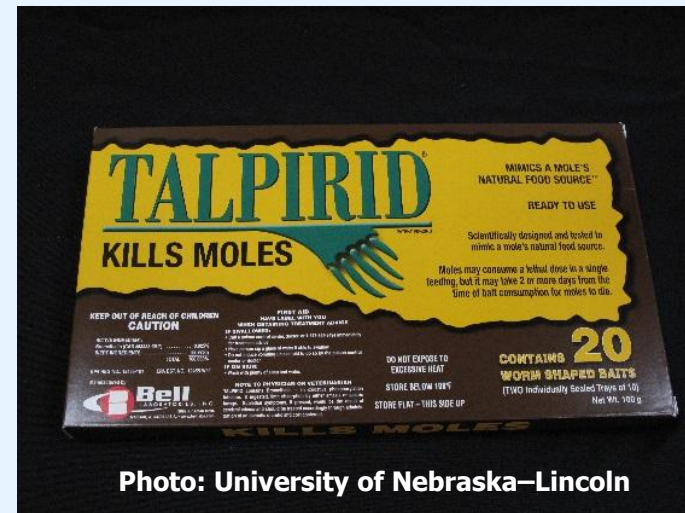


Photo: University of Nebraska—Lincoln



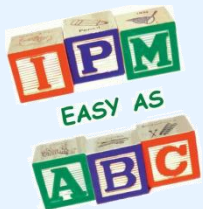
# Mole Control: Toxicants

## ❖ Toxicants: Baits

- Baits must be placed in the active surface burrows
- The burrows must be closed after the bait is introduced
- Always read and follow all label directions

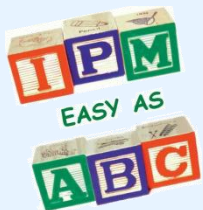


Photos: Bell Laboratories, Inc.



# Mole Management "Wannabes"

- ❖ Many products have been tested by universities and found to be non-effective in controlling moles; better to use proven methods
- ❖ Miscellaneous home remedies
  - Pinwheels/windmills
  - Animal scat
  - Birth control pills
  - Chewing gum
  - Used cat litter
  - Kerosene
  - Ultrasonics





# Resources/Information

- ❖ Internet Center for Wildlife Damage Management

- <http://icwdm.org>

- ❖ Prevention and Control of Wildlife Damage

- <http://icwdm.org/handbook/index.aspx>

- ❖ Local Extension/Pesticide Safety Education Program Office

- Learn more about becoming a Licensed Pesticide Applicator. Only necessary for Restricted Use Pesticides (Wildlife Damage Control Category 14)



# Credits

## ❖ Content Specialist

- Stephen M. Vantassel, Nebraska Extension
- Dennis Ferraro, Nebraska Extension
- Dallas Virchow, USDA-APHIS-Wildlife Services

## ❖ Content Editor

- Erin Bauer, Nebraska Extension

## ❖ Photos

- Stephen M. Vantassel, Nebraska Extension
- Dallas Virchow, USDA-APHIS-Wildlife Services



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