

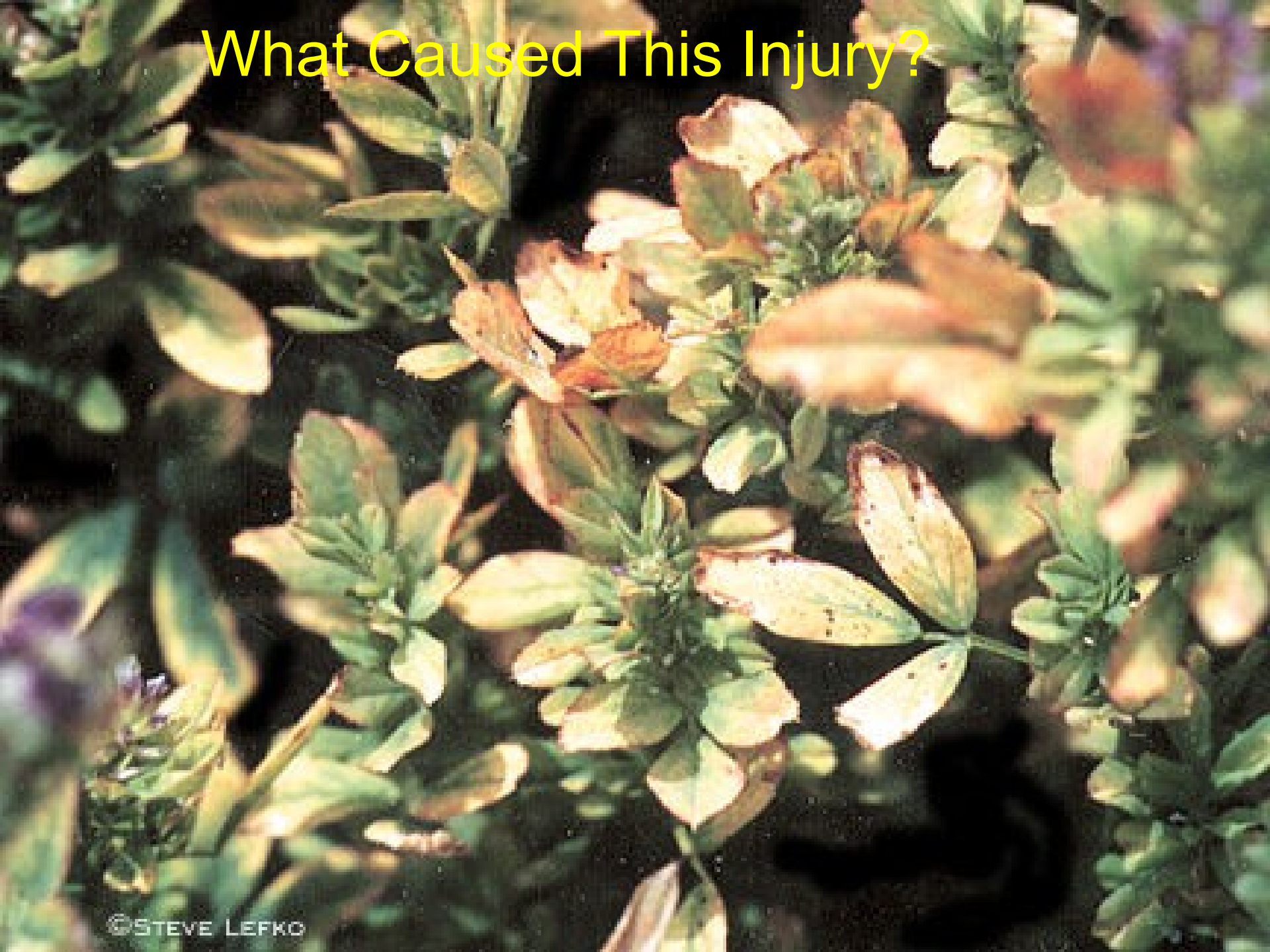
# Diagnosing Alfalfa Problems—The Case of “Look-a-Likes”

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# The Situation

- Many Different Entities may Produce the Same or Similar Symptoms
- Some Insect Injury Mimics Nutrient Deficiencies
- Some Diseases Mimic Herbicide Injury
- At Times, it is Difficult to Tell One From the Other
- This Presentation is Designed to Show you how to Distinguish Between Several of These Cases and to Stimulate Your Thought Processes in How You go About Identifying Specific Problems

# What Caused This Injury?



# Case Number 1

Is it

1. Empoasca Leafhopper Injury
2. Three Cornered Alfalfa Hopper Injury
3. Boron Deficiency

# Empoasca Leafhopper Damage



# Three Cornered Alfalfa Hopper Damage





# How to Differentiate

Look for Insects, Leafhopper or Three Cornered Alfalfa Hopper. If not Present, it is Likely Boron

Empoasca Leafhopper



Three Cornered Alfalfa Hopper



# Also

Wedge Shaped Area at  
Tip of Leaf =  
Empoasca Leafhopper

Girdled Stems =  
Three Cornered  
Alfalfa Hopper



# But, be Careful

- Other Problems Might Mimic the Wedge Shaped Area at the tip of the Leaf.

Verticillium Wilt for Example



# What Caused This Injury?



# Case Number 2

Is it Caused by

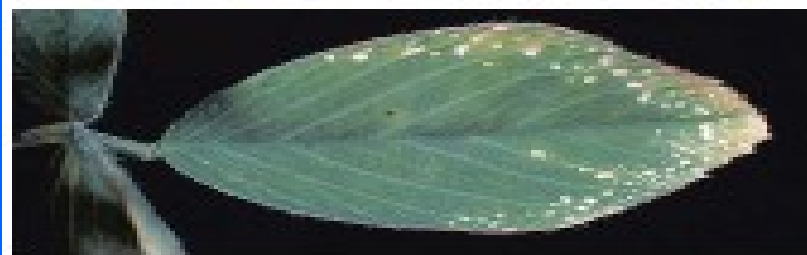
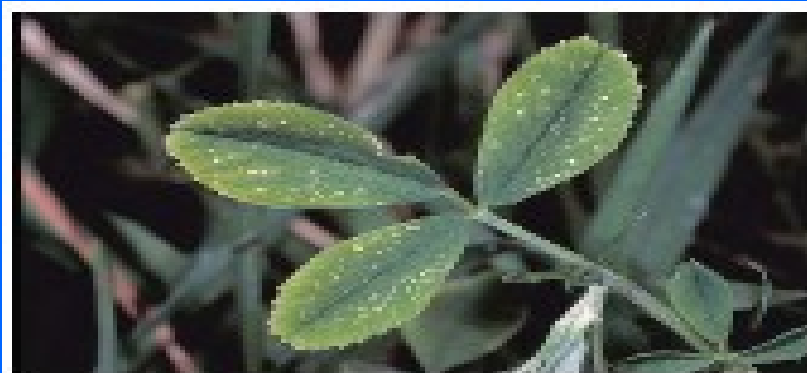
1. Spider Mite Injury
3. Nitrogen Deficiency
4. Phosphorus Deficiency
6. Magnesium Deficiency
5. Potassium Deficiency
8. Iron Deficiency
7. Kerb Herbicide Injury
2. Bacterial Blight
9. Leafspot Disease(s)

# Spider Mite Injury and Webbing Stippling over all Leaf Surface



# Potassium Deficiency

## Stippling on Margins of Leaf



# Kerb Injury

## Stippling Yellow or Brown, not White



# Stemphylium Leafspot

## Tan Colored Lesions with Dark Border



# How to Differentiate

A dark border around an irregular shaped lesion  
Stemphylium Leafspot



# How to Differentiate

- Look for the Presence of Mites or Webbing
- Did you Apply Kerb Herbicide Recently?
- Look for Irregularly Shaped Tan Lesions Surrounded by a Dark Border

# Is it the Pea Aphid or the Blue Alfalfa Aphid?



# Case Number 3

1. Pea Aphid
2. Blue Alfalfa Aphid

# Pea Aphid and A Pink Biotype of the Pea Aphid

Pea Aphid



Pink Pea Aphid Biotype



# Blue Alfalfa Aphid



# How do you Differentiate?

1. Do You Look at the Color?
2. Do You Look at the Size?
3. Do You Look at the Cauda or Cornicles?
4. Do You Look at the Antennae?

# Look at the Antennae

- Pea Aphids have a Dark Band at the Joints of the Antennae.
- Blue Alfalfa Aphids have and Antennae that is Uniform in Color
- This Feature can be Seen with a 10x Hand Lens
- See the Next Slide

# Pea Aphid and Blue Alfalfa Aphid Antennae



# What Caused this Injury?



# Case Number 4

Is it Due to

1. Stemphylium Leafspot
2. Paraquat Injury

# Stemphylium Leafspot





**Paraquat Damage**

# How to Differentiate

A Dark Border Around an Irregular Shaped Lesion is Used to Identify Stemphylium Leaf Spot





What Cause this Kind of  
Damage or Injury?

# Case Number 5

Is it

1. Thrips Injury
2.
3.
4.
5. Eptam Injury
6.
7. Kerb Injury

# Thrips Injury



# Eptam Injury



# Kerb Injury



# Western Flower Thrips



# How to Differentiate

- Thrips—Look for the Insect. Look for Feeding Sites Where the Epidermis has Been Striped from the Leaf Surface. Look Near Major Veins
- Eptam—Did You Apply Eptam Within the Past Few Days? Water Run?
- Kerb—Did You Apply Kerb Recently

# Other Cases of Look-a-Likes

- Defoliation by Severe Common Leafspot and Alfalfa Weevil Larvae
- Systemic Downy Mildew and Hormonal Types of Herbicides
- Phosphorus/Nematodes/Premature First Cutting—All Lead to Poor Regrowth After Cutting
- Poor Nodulation and Pursuit or Raptor Damage
- Gramoxone and Seedling Damping Off
- Leaf Damage by Various Caterpillars

# Hints to Help Identify Problems

- 1. Take Note of the Time of Year. Certain Problems e. g. Leaf Spot Diseases only Occur in the Spring so if it is Summer, it is not Likely a Leaf Spot Disease. Look at the UC IPM Webpage <http://www.ipm.ucdavis.edu> for Information on Year Round Problems in Alfalfa
- 2. Look for Insects. If No Pests are Present, Then Insects can be Ruled Out.
- 3. Review Your Recent Activities. Were any Herbicides of Insecticides Applied?? If so, Consider Phytotoxicity as a Potential Problem.
- 4. Take Note of any Spraying That is Going on Around Your Field. Consider Drift.
- 5. Consider the Previous Crop. Could it Have Introduced Pests such as Nematodes?
- 6. Review Nutrient Issues. Have a Soil or Tissue Analysis Done if Necessary.

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We Leave you This Morning to Enjoy Old Faithful  
Thank You

