



CROP PROTECTANTS: Science K-5

Meets North Carolina Standard Course of Study

Apple Pest, Disease, and Predators

Apple Disease Pests Photos

Monitoring Apple Orchards for Pest, Disease, and Predators

Most Commonly Used Crop Protectants

Activities: Apple Pests, Disease, and Predators

Apple Pest Management Scouting Form





APPLE PESTS, DISEASES and PREDATORS

North Carolina apple growers face many apple pests and diseases in their orchards. Beneficial insects or predator mites may also be present. Apple growers want to keep the natural predators while they free orchards from pests and disease. Careful monitoring and timely control are necessary to slow down these problems. This often means a fungicide or pesticide spray must be applied to the trees. Weather can play a large factor for diseases and pests. Things like temperature, precipitation, and relative humidity can alter the development of plant growth.

Listed below are some common apple pests, pome fruit diseases, and other common causes of apple damage as well as beneficial insects and predator mites.

Common Apple Pests

STLM - Spotted Tentiform Leafminer

OBLR - Obliquebanded Leafroller

RBLR - Redbanded Leafroller

AM - Apple Maggot

CM - Codling Moth

GFW - Green Fruitworm

Mites: European Red Mites

Two Spotted Mite

Apple Rust Mite

OFM - Oriental Fruit Moth

WALH - White Apple Leafhopper

SJS - San Jose Scale

TPB - Tarnished Plant Bug

PC - Plum Curculio

Aphids: Green Apple Aphid

Rosy Apple Aphid

Woody Apple Aphid

Common Pome Fruit Diseases

Apple Scab

Fireblight

Powdery Mildew

Bitter Pit

Sooty Blotch

Moldy Core

Fly Speck

Rust Diseases

Other Common Causes of Apple Damage

Limb Rub

Frost

Hail

Mechanical

Sun Scald

caused by the wind

temperatures become critical during early growth stages

dents put in the apple while they are growing on the tree

tractors, trucks, pruners, etc.

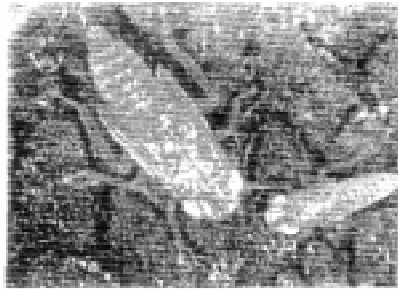
too much direct sun on an apple

Sources: Alabama Cooperative Extension Service, North Carolina Cooperative Extension Service

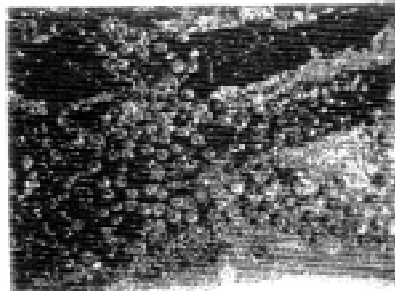




Apple Diseases and Pests



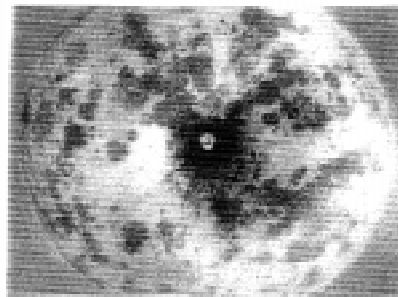
White apple leafhopper nymphs.



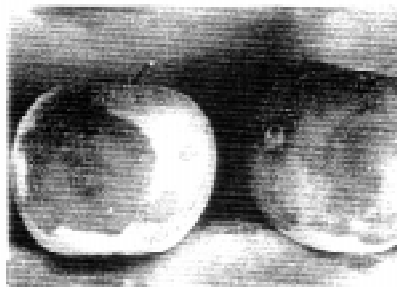
European red mite.



Cracks in fruit caused by scab.



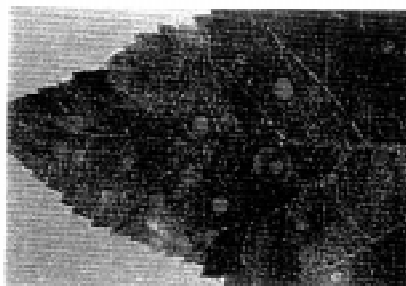
Sooty blotch on apple.



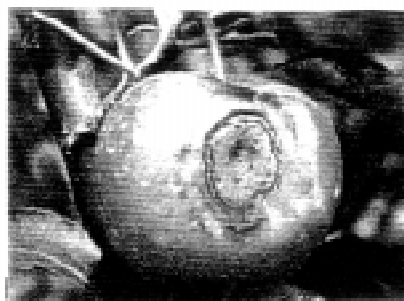
White rot on fruit.



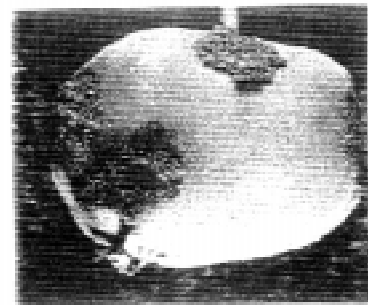
Fire blight blossom blight.



Alternaria leaf blotch.



Cracked cedar-apple rust.

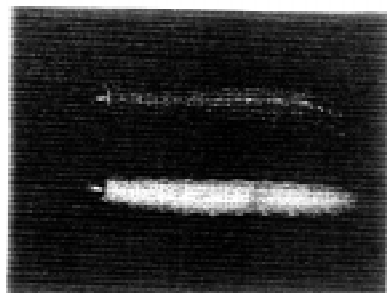


Codling moth fruit injury.





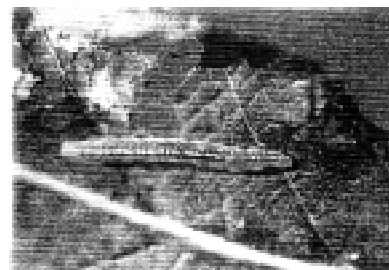
Apple Diseases and Pests



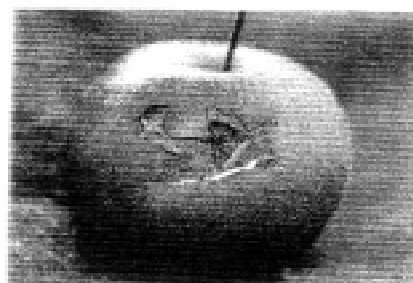
Tufted apple bud moth larva.



Tufted apple bud moth fruit injury.



Redbanded leafroller larva.



Redbanded leafroller fruit injury.



Rosy apple aphid colony.



White apple leafhopper injured leaves versus healthy leaves (left).

Resources:

www.caf.wvu.edu/kearneysville/wvufarm8.html





MONITORING APPLE ORCHARDS FOR PESTS, DISEASE, AND PREDATORS

North Carolina apple growers know that their crop has a complex environment. Timing of sprays is critical to control the pests, disease, and predators that threaten the apple crop each year. Many growers choose to hire trained IPM (Integrated Pest Management) scouts to monitor their orchards. These scouts visit the orchard weekly to check traps and look for evidence of common pests and/or disease.

An apple IPM program uses a variety of methods to sample arthropod populations. Estimates of some pests are obtained by directly counting the number of insects or mites on a specified number of leaves or terminals. Some insects, however, are more difficult to observe because they are highly mobile, active only at night, and difficult to see. For these latter pests alternate sampling methods, such as pheromone trapping and sticky cards, have been developed. Regardless of the methods used, a regular monitoring schedule and accurate records must be maintained.

Growers evaluate the scout's report and then determine their potential orchard problems. This allows apple growers to use the correct pesticide/fungicide chemicals to fit their orchard's needs and to apply them only when necessary.





Most Commonly Used Fruit Crop Protectants

<u>INSECTICIDES</u>	<u>PESTS</u>	<u>FUNGICIDES</u>	<u>PROBLEMS</u>
Agrimek 0.1 SEC	Red Mites	Bayleton 50 DF	Mildew
Ambush 2E	Aphids	Benlate SO DF	50DF Decay
Appollo SC	Red Mites	Captan SOW	Decay & Scab
Asana XL	Aphids	Captec 4F	Decay & Scab
Aziuphosmethyl	Codling Moth	Carbamate 76WDG	Rusts
Dimethoate 400	White Apple Leaf Hopper	COCS SOW	Fire Blight
Guthion 3F	Redbanded Leafroller	Dithane DF	Decay & Scab
Imidan 5OWP	Codling Moth	Fingonex I.6E	Scab
Keithane 35W	Red Mites	Nova 40	Scab & Mildew
Lorsban SOW	Tufted Apple Bud Moth	Penucozeb 80W	Decay & Scab
Penncap M	Tufted Apple Bud Moth	Polyram DF	Decay & Scab
Pyramite	Red Mites	Aliette WDG	Alternaria
Thiodan SOWP	Aphids	Rubigan IEC	Scab & Mildew
		Sulphur 90% Wet	Mildew
		Syllit 65W	Scab&S.Blotch
		Thiram 65W	Rust & Decay
		Topsin M 8SWDG	Scab & Mildew
		Ziram	Decay & Scab





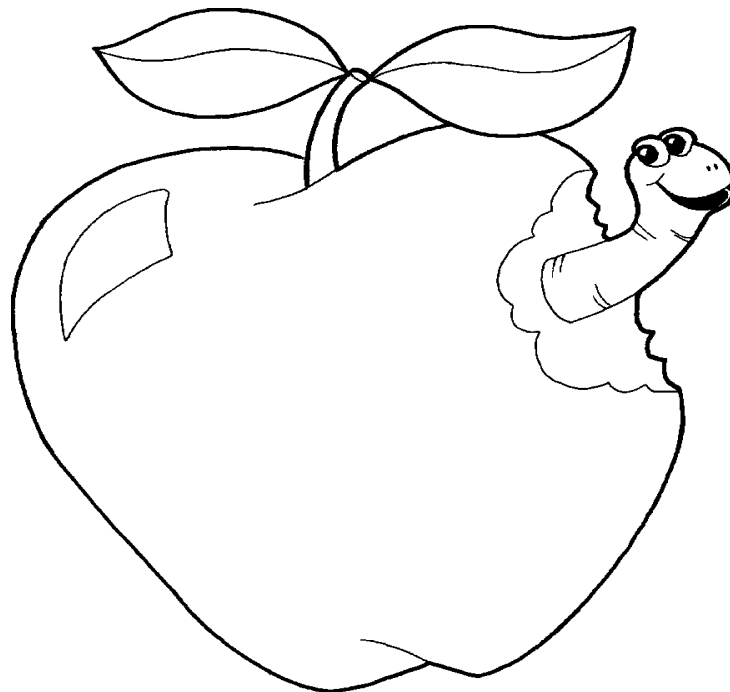
Activities: Apple Pests, Disease, and Predators

Research the pests, diseases, and predators found in the apple orchards of North Carolina.

Contact local apple growers, county extension service personnel, or use published books to find out more information.

Look for things of importance such as: hosts, life stages, life history, monitoring techniques, and trap management of each.

- Use the Sample IPM Scout Weekly Report to gain information and then develop your own IPM Scout Weekly Report.
- Use the information given about pests and diseases in North Carolina apple orchards, life stages of pests/diseases to create a report.
- Consider what actions or comments you would take to correct this problem and bring to harvest healthy apples.





APPLE PEST MANAGEMENT SCOUTING FORM

Orchard: _____

Scout: _____

Date: _____

Indirect Pests:

Insect	Sampling time	Sample unit	Sample Tree												
			1	2	3	4	5	6	7	8	9	10			
ERM eggs	Dormant	20 buds/tree													
RAA	May	infested terminals/tree													
WALH	May, & late July-Aug	10 mature leaves per tree													
STLM	May & July	10 leaves/tree													
PLH	June & July	10 shoots/tree													
ERM	June to Aug	5 leaves/tree													
GAA	June & July	10 shoots/tree													

ERM=European red mite RAA = rosy apple aphid WALH = white apple leafhopper STLM = spotted tentiform leafminer
 PLH = Potato leafhopper GAA = green apple aphid/spirea aphid

Insect Traps:

Insect	Trap density	Insects/trap	Degree-day accumulations form biofix
Codling moth	1/10 acres		
Tufted apple bud moth	1/20 acres		
Redbanded leafroller	1/20 acres		
Apple Maggot	3-4 traps on row nearest source of flies		

Comments: (other insects or diseases present, beneficial insects, weeds, etc.)

