


***Plant Pathology***

		
Maximum Number of Team Members	4	
Number of Team Members Scored	3	
Scantron	Horticulture – CDE# 105482	
<b>Committee:</b> Tyler Butts Craig Canterbury Kathy Duffield Matt Knopp Tara Tatalovich		

The contest will consist of identifying correctly from specimens **thirty (30)** common economic plant diseases which will be selected from the following list. Specimens will be numbered and contestants will identify the common name, host, and ONE control measure for each disease. Students will select the appropriate corresponding number for each disease, host, and ONE control measure from the lists provided and enter those appropriate numbers on the scantron sheet provided.

The score will be determined as follows:

- Each correctly identified disease will count 2 points.
- Each correctly identified host will count 2 point.
- Correct identifying ONE control measures for each disease will count 2 points.

**Tie Breaker:** Tie breakers will consist of the following:

- Judges will compare answers starting with specimen 1 and proceed through the contest until a contestant/team gains an advantage

Bulletins illustrating and describing plant diseases are issued occasionally by the Agricultural Experiment Stations of various states - usually the supply of these bulletins is so quickly exhausted that their listing here is not worthwhile. The 1953 Yearbook of Agriculture is devoted to Plant diseases. Copies of it should be available in all Vocational Agriculture Departments.

**Plant Pathology Disease List**

Revised by M. Rahman, Extension Plant Pathologist (08/2012)

HOST	DISEASE	CONTROL
ALFALFA	Leaf Spot	<ul style="list-style-type: none"> <li>• Cut foliage in a timely manner</li> </ul>

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	Downy Mildew	<ul style="list-style-type: none"> <li>• Cut foliage in a timely manner</li> </ul>
BARLEY	Cover Smut	<ul style="list-style-type: none"> <li>• Treat seed with suitable chemical</li> </ul>
	Loose Smut	<ul style="list-style-type: none"> <li>• Treat seed with suitable chemical</li> </ul>
	Black Loose Smut	<ul style="list-style-type: none"> <li>• Treat seed with a systemic fungicide</li> </ul>
	Scald	<ul style="list-style-type: none"> <li>• Resistant varieties</li> </ul>
	Stripe Rust	<ul style="list-style-type: none"> <li>• Treat seed with suitable chemical</li> </ul>
	Powdery Mildew	<ul style="list-style-type: none"> <li>• Resistant varieties</li> </ul>
OATS	Crown Rust	<ul style="list-style-type: none"> <li>• Resistant varieties</li> </ul>
	Black Loose or Covered Smut (Cannot be separated except by microscopic examination)	<ul style="list-style-type: none"> <li>• Treat seed with suitable chemical</li> </ul>
	Stem Rust	<ul style="list-style-type: none"> <li>• Destroy alternate host</li> <li>• Resistant varieties</li> </ul>
Wheat	Glume Blotch	<ul style="list-style-type: none"> <li>• Treat seed with suitable chemical</li> </ul>
	Leaf Rust	<ul style="list-style-type: none"> <li>• Resistant varieties</li> </ul>
	Stem Rust	<ul style="list-style-type: none"> <li>• Destroy alternate host</li> <li>• Resistant varieties</li> </ul>
	Loose Smut	<ul style="list-style-type: none"> <li>• Hot water seed treatment</li> <li>• Water soak treatment</li> <li>• Treat seed with a systemic fungicide</li> </ul>
	Scab	<ul style="list-style-type: none"> <li>• Non grain crop rotation-bury stubbles</li> <li>• Treat seed with suitable chemical</li> </ul>
	Powdery Mildew	<ul style="list-style-type: none"> <li>• Resistant varieties</li> </ul>
RYE	Ergot	<ul style="list-style-type: none"> <li>• Disease free seed</li> <li>• Cut wild grass hosts</li> </ul>
	Leaf Rust	<ul style="list-style-type: none"> <li>• Resistant varieties</li> </ul>
CLOVER	Rust	<ul style="list-style-type: none"> <li>• No practical control</li> </ul>
	Powdery Mildew	<ul style="list-style-type: none"> <li>• Resistant varieties</li> </ul>
	Sclerotinia Crown Rot	<ul style="list-style-type: none"> <li>• Close grazing in the autumn and early winter</li> </ul>
APPLES	Frogeye Leaf Spot (Black Rot)	<ul style="list-style-type: none"> <li>• Captan</li> <li>• Nova+Mancozeb</li> <li>• Remove and destroy diseased parts</li> </ul>
	Cedar Rust	<ul style="list-style-type: none"> <li>• Remove alternate host</li> <li>• Rubigan + Captan</li> <li>• Rubigan + Ziram</li> </ul>

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	Scab	<ul style="list-style-type: none"> <li>• Captan</li> <li>• Rubigan + Captan</li> <li>• Rubigan + Ziram</li> </ul>
	Sooty Blotch	<ul style="list-style-type: none"> <li>• Facilitate quick fruit drying</li> </ul>
	Bitter Rot	<ul style="list-style-type: none"> <li>• Captan + Pristine</li> <li>• Remove dead branches</li> </ul>
	Fire Blight	<ul style="list-style-type: none"> <li>• Remove and destroy diseased parts</li> <li>• Streptomycin</li> <li>• Bordeaux</li> <li>• Fixed Copper</li> </ul>
PEACHES	Brown Rot	<ul style="list-style-type: none"> <li>• Topsin-M +Sulfur</li> <li>• Indar</li> <li>• Captan</li> </ul>
	Peach-Leaf Curl	<ul style="list-style-type: none"> <li>• Ferbam</li> <li>• Wettable Sulfur</li> <li>• Bravo</li> </ul>
	Scab “Freckles”	<ul style="list-style-type: none"> <li>• Bravo</li> <li>• Topsin-M+ Captan</li> </ul>
	Yellows	<ul style="list-style-type: none"> <li>• Pull and destroy diseased tree</li> </ul>
	Lear Spot or Shot Hole	<ul style="list-style-type: none"> <li>• Wettable Sulfur</li> <li>• Fixed Copper</li> </ul>
PLUMS	Black Knot	<ul style="list-style-type: none"> <li>• Remove and destroy diseased parts</li> <li>• Topsin-M + Captan</li> <li>• Resistant varieties</li> </ul>
	Brown Rot	<ul style="list-style-type: none"> <li>• Captan and Topsin-M, mixed</li> </ul>
CHERRIES	Leaf Spot or Shot hole	<ul style="list-style-type: none"> <li>• Captan and Topsin- M, mixed</li> </ul>
	Black knot	<ul style="list-style-type: none"> <li>• Captan and Topsin- M, mixed</li> <li>• Prune out and destroy visible knot</li> </ul>
<p>NOTE: Most peaches, plums and cherries are sprayed or dusted with sulfur, except for yellows, peach leaf curl, and black knot Never use Bordeaux or lime-sulfur on growing peaches</p>		
CRUCIFERS (Cabbage, Cauliflower, Brussels Sprouts)	Club Root	<ul style="list-style-type: none"> <li>• Avoid infested soil or fumigate</li> <li>• Apply lime to soil to pH 6.8</li> </ul>
	Blackleg	<ul style="list-style-type: none"> <li>• Clean seeds</li> <li>• Hot water seed treatment</li> <li>• Rovral</li> </ul>
	Soft Rot	<ul style="list-style-type: none"> <li>• Prevent mechanical and insect injuries to plant</li> </ul>

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CUCURBITS (Cucumbers, Melons etc)	Bacterial wilt	<ul style="list-style-type: none"> <li>• Cover until bloom with a row cover</li> <li>• Ambush</li> <li>• Admire</li> <li>• Pounce</li> <li>• Rotenone for cucumber beetles</li> </ul> <p>N.B. Cucumber beetle is the vector of the pathogen, controlling the vector in most cases controls the disease</p>
	Anthrachnose	<ul style="list-style-type: none"> <li>• Disease free seed</li> <li>• Mancozeb</li> <li>• Bravo</li> <li>• Topsin-M</li> </ul>
	Downy Mildew	<ul style="list-style-type: none"> <li>• Bravo</li> <li>• Mancozeb</li> <li>• Ranman</li> <li>• Tanos</li> </ul>
	Powdery Mildew	<ul style="list-style-type: none"> <li>• Bravo</li> <li>• Nova</li> </ul>
BEANS	Anthrachnose	<ul style="list-style-type: none"> <li>• Bravo</li> <li>• Headline</li> <li>• Mancozeb</li> <li>• Bury infected debris</li> </ul>
	Bacterial Blight	<ul style="list-style-type: none"> <li>• Disease free seed</li> <li>• Crop rotation</li> </ul>
	Rust	<ul style="list-style-type: none"> <li>• Bravo</li> <li>• Folicur</li> <li>• Endura</li> <li>• Resistant varieties</li> </ul>
	Common Mosaic	<ul style="list-style-type: none"> <li>• Certified seed</li> <li>• Control aphid vector</li> <li>• Disease-free seed</li> </ul>
CORN	Rust	<ul style="list-style-type: none"> <li>• No Practical control</li> </ul>
	Southern Leaf Blight	<ul style="list-style-type: none"> <li>• Resistant varieties</li> </ul>
	Northern Leaf Blight	<ul style="list-style-type: none"> <li>• Resistant varieties</li> </ul>
	Smut	<ul style="list-style-type: none"> <li>• Remove and destroy diseased parts</li> <li>• Crop rotation</li> </ul>
	Maize Dwarf Mosaic Virus	<ul style="list-style-type: none"> <li>• Resistant varieties</li> </ul>
	Gray Leaf Spot (Cercospora)	<ul style="list-style-type: none"> <li>• Resistant varieties</li> </ul>
PEPPER	Bacterial Spot	<ul style="list-style-type: none"> <li>• Resistant varieties</li> </ul>

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		<ul style="list-style-type: none"> <li>• Copper</li> <li>• Disease free seed</li> </ul>
POTATOES	Late Blight	<ul style="list-style-type: none"> <li>• Mancozeb</li> <li>• Copper</li> <li>• Acrobat</li> <li>• Bravo</li> <li>• Curzate</li> </ul>
		<ul style="list-style-type: none"> <li>• Resistant varieties</li> </ul>
	Early Blight	<ul style="list-style-type: none"> <li>• Mancozeb</li> <li>• Copper</li> <li>• Bravo</li> </ul>
	Hopper burn	<ul style="list-style-type: none"> <li>• Insecticide spray of pyrethroid</li> </ul>
	Leaf Roll	<ul style="list-style-type: none"> <li>• Disease free seed</li> </ul>
	Mosaics	<ul style="list-style-type: none"> <li>• Disease free seed</li> </ul>
	Rhizoctonia (Black Scurf, Dry Stem Rot)	<ul style="list-style-type: none"> <li>• No practical control</li> <li>• Cultural practice “plant shallow and hill deep”</li> </ul>
	Scab	<ul style="list-style-type: none"> <li>• Acidify soil</li> <li>• Resistant varieties</li> </ul>
	Black leg	<ul style="list-style-type: none"> <li>• Treat seed with Captan</li> <li>• Polyram</li> <li>• Disease free seed</li> </ul>
Ring Rot	<ul style="list-style-type: none"> <li>• Disease free seed</li> </ul>	
STRAWBERRIES	Leaf Spot	<ul style="list-style-type: none"> <li>• Rally</li> <li>• Nova</li> <li>• Indar</li> <li>• Pristine</li> </ul>
	Botrytis Rot	<ul style="list-style-type: none"> <li>• Renovate</li> <li>• Thin old beds</li> <li>• Luna privilege</li> <li>• Captan</li> <li>• Topsin-M</li> <li>• CaptEvate</li> </ul>
GRAPES	Black Rot	<ul style="list-style-type: none"> <li>• Remove mummies from cane</li> <li>• Ferbam</li> <li>• Captan</li> <li>• Bayleton</li> <li>• Pristine</li> </ul>

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	Downy Mildew	<ul style="list-style-type: none"> <li>• Bordeaux</li> <li>• Fixed copper</li> <li>• Ridomil Gold MZ</li> <li>• Abound</li> </ul>
	Powdery Mildew	<ul style="list-style-type: none"> <li>• Nova</li> <li>• Quintec</li> <li>• Endura</li> </ul>


BRAMBLES (Blackberries, Raspberries, Dewberries)	Anthracnose	<ul style="list-style-type: none"> <li>• Lime-sulfur in spring when leaves show 1/2 inch growth: follow with Cabrio at bloom and two weeks after bloom</li> </ul> <p>Caution: do not use lime-sulfur after 1/2inch leaf, it will cause severe burning</p>
	Orange Rust	<ul style="list-style-type: none"> <li>• Remove infected plants, including all roots</li> <li>• Apply Rally</li> </ul>
	Cane blight and spot	<ul style="list-style-type: none"> <li>• Remove infected canes</li> <li>• Apply Quilt Xcel</li> </ul>
TOMATOES	Late Blight	<ul style="list-style-type: none"> <li>• Mancozeb</li> <li>• Copper</li> <li>• Quadris</li> <li>• Bravo</li> <li>• Bravo Weather</li> </ul>
	Early Blight	<ul style="list-style-type: none"> <li>• Mancozeb</li> <li>• Copper</li> <li>• Bravo</li> <li>• Keep foliage dry as much as possible</li> </ul>

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	Blossom End Rot	<ul style="list-style-type: none"> <li>• Mulch-Even Water Supply</li> <li>• Keep calcium high</li> </ul>
	Septoria Leaf Spot	<ul style="list-style-type: none"> <li>• Crop rotation 3-years</li> <li>• Mancozeb</li> <li>• Copper</li> <li>• Bravo Weatherstik</li> </ul>
	Anthracnose	<ul style="list-style-type: none"> <li>• Rotation 3-years with non-solanaceous crop</li> <li>• Disease free seed</li> <li>• Mancozeb</li> <li>• Copper</li> <li>• Bravo</li> <li>• Quadris</li> </ul>
	Wilt	<ul style="list-style-type: none"> <li>• Resistant varieties</li> </ul>
	Root Knot	<ul style="list-style-type: none"> <li>• Fumigate soil</li> <li>• Crop rotation</li> </ul>



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**HORTICULTURE**  
CDE# 105482

Team Name

This sheet is for demonstration and practice only. You must use a real scan sheet for actual competition.

Incorrect Marks:  X    Correct Mark:

Team Number	State	Last Name	First Name	Placing Classes																	
0 0 0 0																					
1 1 1 1	A	A A A A A A A A A A A A	A A A A A A A A																		
2 2 2 2	B	B B B B B B B B B B B B	B B B B B B B B																		
3 3 3 3	C	C C C C C C C C C C C C	C C C C C C C C																		
4 4 4 4	D	D D D D D D D D D D D D	D D D D D D D D																		
5 5 5 5	E	E E E E E E E E E E E E	E E E E E E E E																		
6 6 6 6	F	F F F F F F F F F F F F	F F F F F F F F																		
7 7 7 7	G	G G G G G G G G G G G G	G G G G G G G G																		
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	N	N N N N N N N N N N N N	N N N N N N N N																		
	O	O O O O O O O O O O O O	O O O O O O O O																		
	P	P P P P P P P P P P P P	P P P P P P P P																		
	Q	Q Q Q Q Q Q Q Q Q Q Q Q	Q Q Q Q Q Q Q Q																		
	R	R R R R R R R R R R R R	R R R R R R R R																		
	S	S S S S S S S S S S S S	S S S S S S S S																		
	T	T T T T T T T T T T T T	T T T T T T T T																		
	U	U U U U U U U U U U U U	U U U U U U U U																		
	V	V V V V V V V V V V V V	V V V V V V V V																		
	W	W W W W W W W W W W W W	W W W W W W W W																		
	X	X X X X X X X X X X X X	X X X X X X X X																		
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Code	0	1	2	3	4	5	6	7	8	9
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Team Activity	Team	Ind.	Practicals (Judges)					
			-1	2	3	4	5	6
0 0 0 0 0 0 0 0								
1 1 1 1 1 1 1 1								
2 2 2 2 2 2 2 2								
3 3 3 3 3 3 3 3								
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5 5 5 5 5 5 5 5								
6 6 6 6 6 6 6 6								
7 7 7 7 7 7 7 7								
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Assessment and Solution									
1	A B C D	6	A B C D	11	A B C D	16	A B C D	21	A B C D
2	A B C D	7	A B C D	12	A B C D	17	A B C D	22	A B C D
3	A B C D	8	A B C D	13	A B C D	18	A B C D	23	A B C D
4	A B C D	9	A B C D	14	A B C D	19	A B C D	24	A B C D
5	A B C D	10	A B C D	15	A B C D	20	A B C D	25	A B C D

Exam		Exam 2/Team	
1	A B C D 26	A B C D	1 A B C D
2	A B C D 27	A B C D	2 A B C D
3	A B C D 28	A B C D	3 A B C D
4	A B C D 29	A B C D	4 A B C D
5	A B C D 30	A B C D	5 A B C D
6	A B C D 31	A B C D	6 A B C D
7	A B C D 32	A B C D	7 A B C D
8	A B C D 33	A B C D	8 A B C D
9	A B C D 34	A B C D	9 A B C D
10	A B C D 35	A B C D	10 A B C D
11	A B C D 36	A B C D	11 A B C D
12	A B C D 37	A B C D	12 A B C D
13	A B C D 38	A B C D	13 A B C D
14	A B C D 39	A B C D	14 A B C D
15	A B C D 40	A B C D	15 A B C D
16	A B C D 41	A B C D	16 A B C D
17	A B C D 42	A B C D	17 A B C D
18	A B C D 43	A B C D	18 A B C D
19	A B C D 44	A B C D	19 A B C D
20	A B C D 45	A B C D	20 A B C D
21	A B C D 46	A B C D	21 A B C D
22	A B C D 47	A B C D	22 A B C D
23	A B C D 48	A B C D	23 A B C D
24	A B C D 49	A B C D	24 A B C D
25	A B C D 50	A B C D	25 A B C D



Identification A																										
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
Number of Specimen	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
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Number of Specimen	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
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	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
Identification B																										
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
Number of Specimen	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
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25	25	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	
Number of Specimen	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	
	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	
	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	
	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	
	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9

## 2019/2020 Career Development Event Rules and Regulations

### *Plant Pathology CDE Code Sheet*

#### Diseases

001. Anthracnose	014. Cedar/apple rust on leaves or fruit	027. Late blight	041. Ring rot
002. Bacterial blight		028. Leaf blight	042. Root knot (Nematode)
003. Bacterial spot	015. Club root	029. Leaf roll	043. Rust
004. Bacterial wilt	016. Covered smut	030. Leaf rust	044. Scab
005. Bitter rot on fruit	017. Crown gall	031. Leaf spot	045. Scab “freckles”
006. Black knot	018. Crown rust	032. Leaf spot or shot hole	046. Scald
007. Black leg	019. Downy mildew	033. Loose smut	047. Sclerotinia crown rot
008. Black loose smut or covered smut*	020. Early blight	034. Maize Dwarf Mosaic Virus	048. Septoria leaf spot
009. Black rot	021. Ergot	035. Mosaic (including common or virus)	049. Smut
010. Blossom - end rot	022. Fire blight on twigs, limbs or fruit	036. Northern leaf blight	050. Soft rot
011. Botrytis rot	023. Frog-eye leaf spot	037. Orange rust	051. Sooty blotch on fruit
012. Brown rot	024. Glume blotch	038. Peach leaf curl	052. Southern leaf blight
013. Cane blight and spot	025. Gray Leaf Spot ( <i>Cercospora</i> )	039. Powdery mildew	053. Stem rust
	026. Hopper burn	040. Rhizoctonia	054. Stripe
			055. Wilt
			056. Yellow

#### Host

001. Alfalfa	005. Brambles	009. Crucifer	013. Peach	017. Rye
002. Apple	006. Cherry	010. Cucurbits	014. Pepper	018. Strawberry
003. Barley	007. Clover	011. Grapes	015. Plums	019. Tomatoes
004. Bean	008. Corn	012. Oats	016. Potato	020. Wheat

#### Controls

101. Abound	125. Crop rotation	Cabrio at bloom and two weeks after bloom	166. Remove infected canes
102. Acidify soil	126. Crop rotation 3-years		167. Remove infected plants, including all roots
103. Acrobat	127. Cultural practice “plant shallow and hill deep”	146. Luna privilege	168. Remove mummies from cane
104. Admire		147. Mancozeb	169. Renovate
105. Ambush	128. Curzate	148. Mulch-Even Water Supply	170. Resistant varieties
106. Apply lime (pH 6.8)	129. Cut foliage in a timely manner	149. No practical control	171. Ridomil Gold MZ
107. Apply Quilt Xcel	130. Cut wild grass hosts	150. Non grain crop rotation-bury stubbles	172. Rotation 3-years with non-solanaceous crop
108. Apply Rally	131. Destroy alternate host	151. Nova	173. Rotenone - cucumber beetles
109. Avoid infested soil or fumigate	132. Disease free seed	152. Nova+Mancozeb	174. Rovral
110. Bayleton	133. Endura	153. Polyram	175. Rubigan + Captan
111. Bordeaux	134. Facilitate quick fruit drying	154. Pounce	176. Rubigan + Ziram
112. Bravo	135. Ferbam	155. Prevent mechanical and insect injuries to plant	177. Streptomycin
113. Bravo Weather stik	136. Fixed Copper	156. Pristine	178. Tanos
114. Bury infected debris	137. Folicur	157. Prune out and destroy visible knot	179. Thin old beds
115. Captan	138. Fumigate soil	158. Pull and destroy diseased tree	180. Topsim-M + Captan
116. Captan + Pristine	139. Headline	159. Quadris	181. Topsin-M
117. Captan & Topsin- M, mixed	140. Hot water seed treatment	160. Quintec	182. Topsin-M +Sulfur
118. CaptEbate	141. Indar	161. Rally	183. Treat seed with a systemic fungicide
119. Certified seed	142. Insecticide spray of pyrethroid	162. Ranman	184. Treat seed with Captan
120. Clean seeds	143. Keep calcium high	163. Remove alternate host	185. Treat seed with suitable chemical
121. Close grazing in the autumn and early winter	144. Keep foliage dry as much as possible	164. Remove and destroy diseased parts	186. Water soak treatment
122. Control aphid vector	145. Lime-sulfur in spring when leaves show 1/2 inch growth: follow with	165. Remove dead branches	187. Wettable Sulfur

