

PLANT PATHOLOGY

(February, 2025)

PURPOSE

The Plant Pathology Career Development Event stimulates learning activities to create interest in career preparation for the plant pathology field.

ELIGIBILITY

The participant must be an active member of a chartered West Virginia FFA Chapter and enrolled in grades 9, 10, 11, or 12. Each chapter may enter one team.

EVENT PROCEDURE

The event will be a team event consisting of four students. Only the top 3 scores will be calculated in the team total. A team may compete with less than 4 members. FFA members will wear official dress or professional dress as it pertains to the profession. For example, Black pants white shirt or button up shirt.

No FFA advisors/coaches will be allowed in the area of the contest, but arrangements will be made to view the specimens following the contest.

PRACTICUMS

The contest will consist of ID of economic plant diseases and their control measures. Participants will have 1 ½ min per ID slide.

EVENT MATERIALS

MATERIALS STUDENTS MUST PROVIDE

- Pencils
- Clipboards
- Electronic Calculator

INDIVIDUAL PRACTICUMS

GENERAL KNOWLEDGE EXAMINATION

Each participant will complete a 30 specimen ID

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.

SCORING

| Practicum | Activity | Individual | Team |
|-----------------------|--------------|------------|------|
| ID of Disease | Written Exam | 60 | 180 |
| ID of Host | Written Exam | 60 | 180 |
| ID of Control Measure | Written Exam | 60 | 180 |
| TOTAL | | 180 | 540 |

TIE BREAKER

In the event of a tie in team scores, the fourth contestant's score will be used to determine placing.



HORTICULTURE

CDE# 105482

Incorrect Marks Correct Mark



Team Name

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

| Team Number | State | Last Name | First Name |
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| Place | Placing Classes | | | | | | | | | Place |
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| 1 1234 | | | | | | | | | | 1234 1 |
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| Team Activity | |
|---------------|---------|
| Team | Ind. |
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| Practicums (Judges) | | | | | |
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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 | |
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| 1 A B C D | 26 A B C D |
| 2 A B C D | 27 A B C D |
| 3 A B C D | 28 A B C D |
| 4 A B C D | 29 A B C D |
| 5 A B C D | 30 A B C D |
| 6 A B C D | 31 A B C D |
| 7 A B C D | 32 A B C D |
| 8 A B C D | 33 A B C D |
| 9 A B C D | 34 A B C D |
| 10 A B C D | 35 A B C D |
| 11 A B C D | 36 A B C D |
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| 13 A B C D | 38 A B C D |
| 14 A B C D | 39 A B C D |
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| 16 A B C D | 41 A B C D |
| 17 A B C D | 42 A B C D |
| 18 A B C D | 43 A B C D |
| 19 A B C D | 44 A B C D |
| 20 A B C D | 45 A B C D |
| 21 A B C D | 46 A B C D |
| 22 A B C D | 47 A B C D |
| 23 A B C D | 48 A B C D |
| 24 A B C D | 49 A B C D |
| 25 A B C D | 50 A B C D |

| Exam 2/Team | |
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[illegible]

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

| Host | Disease | Control |
|----------|------------------------|---|
| APPLES | Fire Blight | <ul style="list-style-type: none"> • Remove and destroy diseased parts • Streptomycin • Bordeaux • Fixed Copper |
| PEACHES | Brown Rot | <ul style="list-style-type: none"> • Topsin-M +Sulfur • Indar • Captan |
| | Peach-Leaf Curl | <ul style="list-style-type: none"> • Ferbam • Wettable Sulfur • Bravo |
| | Scab “Freckles” | <ul style="list-style-type: none"> • Bravo • Topsin-M+ Captan |
| | Yellows | <ul style="list-style-type: none"> • Pull and destroy diseased tree |
| | Lear Spot or Shot Hole | <ul style="list-style-type: none"> • Wettable Sulfur • Fixed Copper |
| PLUMS | Black Knot | <ul style="list-style-type: none"> • Remove and destroy diseased parts • Topsin-M + Captan • Resistant varieties |
| | Brown Rot | <ul style="list-style-type: none"> • Captan and Topsin-M, mixed |
| CHERRIES | Leaf Spot or Shot hole | <ul style="list-style-type: none"> • Captan and Topsin- M, mixed |
| | Black knot | <ul style="list-style-type: none"> • Captan and Topsin- M, mixed • Prune out and destroy visible knot |

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

| | | |
|--|-----------|---|
| CRUCIFERS (Cabbage, Cauliflower, Brussels Sprouts) | Club Root | <ul style="list-style-type: none"> • Avoid infested soil or fumigate • Apply lime to soil to pH 6.8 |
| | Blackleg | <ul style="list-style-type: none"> • Clean seeds • Hot water seed treatment • Rovral |
| | Soft Rot | <ul style="list-style-type: none"> • Prevent mechanical and insect injuries to plant |

| HOST | DISEASE | CONTROL |
|--------------------------------------|--------------------------------|--|
| CUCURBITS (Cucumbers, Melons etc) | Bacterial wilt | <ul style="list-style-type: none"> • Cover until bloom with a row cover • Ambush • Admire • Pounce • Rotenone for cucumber beetles <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"> • Disease free seed • Mancozeb • Bravo • Topsin-M |
| | Downy Mildew | <ul style="list-style-type: none"> • Bravo • Mancozeb • Ranman • Tanos |
| | Powdery Mildew | <ul style="list-style-type: none"> • Bravo • Nova |
| BEANS | Anthrachnose | <ul style="list-style-type: none"> • Bravo • Headline • Mancozeb • Bury infected debris |
| | Bacterial Blight | <ul style="list-style-type: none"> • Disease free seed • Crop rotation |
| | Rust | <ul style="list-style-type: none"> • Bravo • Folicur • Endura • Resistant varieties |
| | Common Mosaic | <ul style="list-style-type: none"> • Certified seed • Control aphid vector • Disease-free seed |
| CORN | Rust | <ul style="list-style-type: none"> • No Practical control |
| | Southern Leaf Blight | <ul style="list-style-type: none"> • Resistant varieties |
| | Northern Leaf Blight | <ul style="list-style-type: none"> • Resistant varieties |
| | Smut | <ul style="list-style-type: none"> • Remove and destroy diseased parts • Crop rotation |
| | Maize Dwarf Mosaic Virus | <ul style="list-style-type: none"> • Resistant varieties |
| | Gray leaf Spot (Cercospora) | <ul style="list-style-type: none"> • Resistant varieties |
| PEPPER | Bacterial Spot | <ul style="list-style-type: none"> • Resistant varieties • Copper • Disease free seed |

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

| HOST | DISEASE | CONTROL |
|---|----------------------|---|
| BRAMBLES (Blackberries, Raspberries, Dewberries) | Anthracnose | <ul style="list-style-type: none"> Lime-sulfur in spring when leaves show 1/2 inch growth: follow with Cabrio at bloom and two weeks after bloom <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"> Remove infected plants, including all roots Apply Rally |
| | Cane blight and spot | <ul style="list-style-type: none"> Remove infected canes Apply Quilt Xcel |
| TOMATOES | Late Blight | <ul style="list-style-type: none"> Mancozeb Copper Quadris Bravo Bravo Weather |
| | Early Blight | <ul style="list-style-type: none"> Mancozeb Copper Bravo Keep foliage dry as much as possible |
| | Blossom End Rot | <ul style="list-style-type: none"> Mulch-Even Water Supply Keep calcium high |
| | Septoria Leaf Spot | <ul style="list-style-type: none"> Crop rotation 3-years Mancozeb Copper Bravo Weatherstik |
| | Anthracnose | <ul style="list-style-type: none"> Rotation 3-years with non- solanaeeous crop Disease free seed Mancozeb Copper Bravo Quadris |
| | Wilt | <ul style="list-style-type: none"> Resistant varieties |
| | Root Knot | <ul style="list-style-type: none"> Fumigate soil Crop rotation |

Plant Pathology CDE CODE SHEET 2022

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

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 |

Control

| | | | |
|--|---|---|---|
| 101 Abound | 126 Crop rotation 3-years | 146 Luna privilege | 166 Remove infected canes |
| 102 Acidify soil | 127 Cultural practice “plant shallow and hill deep” | 147 Mancozeb | 167 Remove infected plants, including all roots |
| 103 Acrobat | 128 Curzate | 148 Mulch-Even Water Supply | 168 Remove mummies from cane |
| 104 Admire | 129 Cut foliage in a timely manner | 149 No practical control | 169 Renovate |
| 105 Ambush | 130 Cut wild grass hosts | 150 Non grain crop rotation-bury stubbles | 170 Resistant varieties |
| 106 Apply lime (pH 6.8) | 131 Destroy alternate host | 151 Nova | 171 Ridomil Gold MZ |
| 107 Apply Quilt Xcel | 132 Disease free seed | 152 Nova+Mancozeb | 172 Rotation 3-years with non-solanaceous crop |
| 108 Apply Rally | 133 Endura | 153 Polyram | 173 Rotenone - cucumber beetles |
| 109 Avoid infested soil or fumigate | 134 Facilitate quick fruit drying | 154 Pounce | 174 Rovral |
| 110 Bayleton | 135 Ferbam | 155 Prevent mechanical and insect injuries to plant | 175 Rubigan + Captan |
| 111 Bordeaux | 136 Fixed Copper | 156 Pristine | 176 Rubigan + Ziram |
| 112 Bravo | 137 Folicur | 157 Prune out and destroy visible knot | 177 Streptomycin |
| 113 Bravo Weather stik | 138 Fumigate soil | 158 Pull and destroy diseased tree | 178 Tanos |
| 114 Bury infected debris | 139 Headline | 159 Quadris | 179 Thin old beds |
| 115 Captan | 140 Hot water seed treatment | 160 Quintec | 180 Topsim-M + Captan |
| 116 Captan + Pristine | 141 Indar | 161 Rally | 181 Topsin-M |
| 117 Captan & Topsin- M, mixed | 142 Insecticide spray of pyrethroid | 162 Ranman | 182 Topsin-M +Sulfur |
| 118 CaptEvate | 143 Keep calcium high | 163 Remove alternate host | 183 Treat seed with a systemic fungicide |
| 119 Certified seed | 144 Keep foliage dry as much as possible | 164 Remove and destroy diseased parts | 184 Treat seed with Captan |
| 120 Clean seeds | 145 Lime-sulfur in spring when leaves show 1/2 inch growth: follow with Cabrio at bloom and two weeks after bloom | 165 Remove dead branches | 185 Treat seed with suitable chemical |
| 121 Close grazing in the autumn and early winter | | | 186 Water soak treatment |
| 122 Control aphid vector | | | 187 Wettable Sulfur |
| 123 Copper | | | |
| 124 Cover until bloom with a row cover | | | |
| 125 Crop rotation | | | |

