

# FLORICULTURE

## **Purpose**

The State Floriculture Contest is designed to stimulate student interest in production and retailing of flowers, plants, and foliage in the secondary agriculture curricula.

## **Objectives**

Students participating in the State Floriculture Contest should be able to:

- I. Identify floriculture and bedding plants commonly grown in Missouri.
- II. Identify unhealthy plants due to pest, nutritional, mechanical, or chemical injury.
- III. Understand principles of and develop skills underlying propagation, growth requirements, growing techniques, harvesting, marketing, and maintenance of established floriculture plants

### Crosswalk with Show Me Standards

Objectives – Students participating in the Career Development Event should be able to:		Show-Me Standards	
		Knowledge Standards (Content Areas)	Performance Standards (Goals)
1.	Identify floriculture and bedding plants commonly grown in Missouri.	MA.1, MA.2	1.9
2.	Identify unhealthy plants due to pest, nutritional, mechanical, or chemical injury.	SC.3, SC.5	3.4, 3.6, 3.8
3.	Understand principles of and develop skills underlying propagation, growth requirements, growing techniques, harvesting, marketing, and maintenance of established floriculture plants.	FA.1, FA.2	4.3, 4.4, 4.5, 4.7, 4.8

CORRESPONDING SECONDARY AGRICULTURE CURRICULUM			
<b>Course and/or Curriculum:</b>	Greenhouse Operation and Management	<b>Unit(s):</b>	All Units
	Floriculture		All Units

## Event Format

The contest will consist of three components: General Knowledge, Identification, and Practicum.

1. General Knowledge Examination
  - a. This portion of the contest will test the contestants' knowledge and understanding of production and retailing of floriculture crops and the selection, use, care, and culture of these plants in the home environment.
  - b. It will consist of 60 questions (25 from Greenhouse Industry, 25 from Floral industry and 10 from pesticide application and/or floral pricing covering the following general topics:
    - (1) Greenhouse design and equipment
    - (2) Basic plant growth and function
    - (3) Plant propagation
    - (4) Plant production technique
    - (5) Diseases and insects
    - (6) Basic business management.
2. Identification
  - a. Each contestant will be required to identify 60 specimens from the Floriculture Plant Identification List.
  - b. Each specimen will be identified by number.
  - c. Contestants will need to match the specimen with the correct name on the answer sheet.
  - d. Students will be allowed 50 seconds per plant as well as 5 minutes at the end of the rotation to go back and review any plant(s) and bubble their scansheet.
  - e. **Duplicate samples may not be used in any identification portion of the event.**
3. Disorders
  - a. Plant Disorders and Diagnosis - Each contestant will complete this practicum of five stations including diagnosing disorders and selecting the most correct remedy. Event organizers have the discretion to offer multiple choice options on disorders identification. Students will be allowed 2 minutes per plant disorder, as well as 5 minutes at the end of the rotation to go back and review and bubble their scansheet.
4. Tool Identification
  - a. Floriculture Tool and Product Identification – Each contestant will identify 25 items selected from the Floriculture/Greenhouse Items list (Student Copy 2). Students will be allowed 50 seconds per tool as well as 5 minutes at the end of the rotation to go back and review any tool(s) and bubble their scansheets. **Duplicate samples may not be used in any identification portion of the event.**

### Event Scoring

<b>Event</b>	<b>Points</b>	<b>Time</b>	<b>Rotation</b>
General Knowledge (60 questions @ 5 pts each)	300	1 hour	Rotation 1
Identification (60 specimens @ 5 pts each)	300	1 hour	Rotation 2
Plant Disorders & Diagnosis	50	30 minutes	Rotation 3
Tool Identification	50	30 minutes	Rotation 4
<b>TOTAL</b>	<b>700</b>		

1. Tie scores among teams in all events should be broken using the high individual team member's score. In case the scores are tied, the scores of the second high individual on each team should be used.

### Event Rules and Regulations

1. Each team may consist of three or four members. The top three individual scores will make up the team score.
2. Contestants will not be allowed to communicate with anyone other than contest officials while the contest is in progress. Failure to observe this rule may result in elimination from the contest.

## References

Catalogs from mail order seed companies are good sources for information. They can be obtained free of charge from most companies. Farm and garden magazines are full of addresses for these companies in the late winter of every year. Supply catalogs such as: Hummert, Stuppy or similar catalogs can be obtained free of charge or for a minimal fee from most supply companies. Additionally, the National FFA CDE Handbook for Floriculture provides several references that could be utilized in the training of teams.

### Training References:

Greenhouse Operation and Management (Instructor and Student Reference) (2002). Available on the DESE Ag Ed website under the Plant Science Curriculum cont tab.

Floristry (Instructor and Student Reference) (1996). IML, Available on the DESE Ag Ed

Floriculture Appendix – DESE Ag Ed website under the CDE Handbook tab.  
website under the Plant Science Curriculum tab

### Practicum A Plant Disorders & Diagnosis Reference:

National FFA Floriculture CDE Classroom Guide. Available at: <https://www.ffa.org/cde-lde-classroom-resources>

### Written Test Reference:

Greenhouse Operation and Management (Instructor and Student Reference) (2002). Available on the DESE Ag Ed website under the Plant Science Curriculum cont tab.

Floristry (Instructor and Student Reference) (1996). IML, Available on the DESE Ag Ed

Riley & Shry (8<sup>th</sup> Edition). Introductory Horticulture. Albany, New York:  
<http://www.cengage.com/us/>

National Pesticide Applicator Certification Core Manual (MX328), *Appendix C – Conversions & Calculations AND pages 169-171 – Calculating Areas & Calculating Application Rates*.

## Forms

See following: Training Reference 1, 2, 3 & Student Copy 1, 2 & 3.

## FLORICULTURE PLANT IDENTIFICATION LIST

1	African Violet	Saintpaulia ionantha cv.
2	Ageratum	Ageratum houstonianum
3	Aglaonema	Aglaonema commutatum
4	Air Plant	Tillandsia
5	Aluminum Plant	Pilea cadierei
6	Alyssum	Lobularia maritima
7	Amaryllis	Hippeastrum hybrid cv.
8	Amazon elephant ear	Alocasia x amazonica
9	Annual Vinca	Catharanthus roseus
10	Artillery Plant	Pilea microphylla
11	Asiatic or Oriental Lily	Lilium hybrid cv.
12	Asparagus "Fern"	Asparagus setaceus
13	Astilbe	Astilbe hybrid cv.
14	Azalea	Rhododendron hybrids
15	Baby's Breath	Gypsophila elegans cv.
16	Barrel Cactus	Echinocactus cv.
17	Benjamin Fig	Ficus benjamina cv
18	Big Leaf Hydrangea	Hydrangea macrophylla
19	Bird of Paradise	Strelitzia reginae
20	Blushing Bromeliad	Neoreglia carolinae 'Tricolor'
21	Boston Fern	Nephrolepis exaltata cv.
22	Cactus	Opuntia cv.
23	Caladium	Caladium x hortulanum cv.
24	Calla Lily	Zantedeschia hybrid cv.
25	Campanula	Campanula hybrid cv.
26	Carnation	Dianthus caryophyllus cv.
27	China Aster	Callistephus chinensis cv.
28	Christmas Cactus	Schlumbergera bridgesii
29	Cineraria	Senecio x hybridus cv.
30	Clematis	Clematis hybrid cv.
31	Cockscomb	Celosia argentea cv.
32	Coleus	Solenostemon scutellarioides
33	Corn Plant	Dracena fragrans
34	Creeping fig	Ficus pumila
35	Croton	Codiaeum variegatum pictum
36	Crown of Thorns	Euphorbia splendens
37	Cymbidium Orchid	Cymbidium cv.
38	Daffodil or Narcissus	Narcissus hybrid cv.
39	Dahlia	Dahlia hybrid cv.
40	Daylily	Hemerocallis cv.
41	Dendrobium Orchid	Dendrobium cv.
42	Dusty Miller	Senecio cineraria
43	Dutch Iris	Iris x xiphium cv.
44	Emerald Ripple Peperomia	Peperomia caperata

45	English Ivy	Hedera helix cv.
46	Fiddle leaf fig	Ficus lyrata
47	Flamingo Plant	Anthurium x andraeanum cv.
48	Florist's Chrysanthemum	Chrysanthemum x morifolium
49	Florist's Cyclamen	Cyclamen x persicum cv.
50	Freesia	Freesia x hybrida
51	Garden Canna	Canna x generalis cv.
52	Garden Gladiolus	Gladiolus x hortulanus cv.
53	Gardenia	Gardenia jasminoides
54	Gerbera Daisy	Gerbera jamesonii
55	Globe Amaranths	Gomphrena hybrid cv.
56	Golden Pothos	Epipremnum aureum cv.
57	Heartleaf Philodendron	Philodendron scandens oxycardium
58	Hens and Chicks	Sempervivum hybrid cv.
59	Hibiscus	Hibiscus rosa-sinensis
60	Hosta	Hosta cv.
61	Hyacinth	Hyacinthus orientalis cv.
62	Hybrid Tea Rose	Rosa hybrid cv
63	Impatiens	Impatiens hybrid cv.
64	Ivy Geranium	Pelargonium peltatum cv.
65	Jade Plant	Crassula argentea
66	Kalanchoe	Kalanchoe x blossfeldiana cv.
67	Ladyslipper Orchid	Paphiopedilum hybrid cv.
68	Lantana	Lantana camara
69	Larkspur	Delphinium consolida cv.
70	Leatherleaf Fern	Rumohra adiantiformis
71	Lemongrass (herb)	Cymbopogon cv.
72	Lemon leaf	Gaultheria shallon
73	Liatis	Liatis spicata
74	Lisianthus	Eustoma grandiflorum
75	Marguerite Daisy	Argyranthemum frutescens
76	Marigold	Tagetes species cv.
77	Million Bells	Calibrachoa hybrid cv.
78	Monte Cassino Aster	Aster pringlei
79	Moth Orchid	Phalaenopsis cv.
80	Nephtytis	Syngonium podophyllum
81	Nerve Plant	Fittonia verschaffeltii argyroneura
82	New Guinea impatiens	Impatiens hawkeri
83	Norfolk Island Pine	Araucaria heterophylla
84	Octopus Plant	Schefflera arboricola
85	Ornamental Pepper Plant	Capsicum annuum
86	Ornamental Sweet Potato	Impomoea batatas cv.
87	Pansy	Viola x wittrockiana cv.
88	Parlor Palm	Chamaedorea elegans

89	Peace Lily	Spathiphyllum
90	Perennial Vinca (Periwinkle)	Vinca minor
91	Pentas	Pentas hybrid cv.
92	Peony	Paeonia cv.
93	Peruvian Lily	Alstroemeria hybrid cv.
94	Petunia	Petunia x hybrida cv.
95	Pin Cushion Protea	Leucospermum hybrid cv.
96	Pittosporum	Pittosporum tobira
97	Poinsettia	Euphorbia pulcherrima cv.
98	Polka Dot Plant (Pink Splash)	Hypoestes phyllostachya
99	Portulaca	Portulaca oleracea cv.
100	Prayer Plant	Maranta leuconeura
101	Primrose	Primula malacoides cv.
102	"Purple Passion", Velvet Plant	Gynura aurantiaca 'Sarmentosa'
103	Ranunculus	Ranunculus hybrid cv.
104	Red Edge Dracaena	Dracaena cincta
105	Regal (Martha Washington) Geranium	Pelargonium x domesticum
106	Rock trumpet	Mandevilla
107	Rubber Plant	Ficus elastica cv
108	Salvia	Salvia splendens cv.
109	Shasta Daisy	Leucanthemum x superbum
110	Shrimp Plant	Justica brandegeana
111	Silver Dollar Eucalyptus	Eucalyptus polyanthemos
112	Silver Vase Bromeliad	Aechmea fasciata cv.
113	Snake Plant	Sansevieria trifasciata cv.
114	Snapdragon	Antirrhinum majus cv.
115	Solidago	Solidago hybrid cv
116	Spider Plant	Cholorophytum comosum cv.
117	Split Leaf Philodendron	Monstera deliciosa
118	Spotted Dumbcane	Dieffenbachia
119	Sprengeri Fern	Asparagus densiflorus
120	Spring Heather	Erica carnea cv.
121	Statice	Limonium sinuatum
122	Stephanotis	Stephanotis floribunda
123	Stock	Matthiola incana cv.
124	Strawberry Begonia	Saxifraga stolonifera
125	String of pearls	Senecio rowleyanus
126	Sunflower	Helianthus annuus
127	Swedish Ivy	Plectranthus australis
128	Thanksgiving Cactus, Crab Cactus	Schulmbergera truncata
129	Trumpet (Easter) Lily	Lilium longiflorum
130	Tuberous Begonia	Begonia x tuberhybrida cv.
131	Tulip	Tulipa cv.
132	Variegated Peperomia	Peperomia obtusifolia 'Variegata'



133	Verbena	Verbena hybrid cv.
134	Wandering Jew	Tradescantia zebrine
135	Watermelon Peperomia	Peperomia sandersii
136	Wax Begonia	Begonia x semperflorens –cultorum
137	Wax Plant	Hoya carnososa
138	Waxflower	Chamelaucium uncinatum
139	Wind flower	Anemone x hybrida
140	Zebra Plant	Aphelandra squarrosa cv.
141	Zinnia	Zinnia cv.
142	Zonal Geranium	Pelargonium x hortorum cv.
143	ZZ plant	Zamioculcas zamiifolia

## IDENTIFYING AND CONTROLLING PLANT DISORDERS PRACTICUM

This practicum is aimed at developing in students the ability to recognize and recommend remedial measures for various types of plant disorders and/or pests. Included among these are environmental, nutritional, pest-related, and disease-related disorders.

Five different stations depicting plant disorders will be included. The participant must identify the item and its classification (disease, insect/pest/mites, nutritional/environmental). The participant then must determine the chemical and/or cultural controls for the disorder. Each participant will identify 5 specimens valued at 10 points each. Identifying the disorder correctly will be worth five points.

Pest and disorder items may be presented as an intact specimen, photograph or preserved specimen (herbarium sheet, insect mount, etc.). Each specimen will be designated by a station number. No specimens or items may be touched or handled in any way. Refer to the Disorder Practicum Scorecard (Form 65) for additional details.

<b>Classification</b>	<b>Identification Multiple Choice</b>	<b>Chemical Control</b>	<b>Cultural Control</b>
Disease	Black Leaf Spot	None	Correct/Adjust Watering
	Botrytis-Grey Mold	Fungicide	Reduce Relative Humidity
	Damping Off	None	None
	Powdery Mildew	Fungicide	Reduce Relative Humidity
	Root Rot	Fungicide	Correct/Adjust Watering
	Rust	Fungicide	Correct/Adjust Watering
	Stem Rot	Fungicide	Correct/Adjust Watering
Insects / Pests/ Mites	Aphids	Insecticide	Ladybird Beetles
	Fungus Gnats	Insecticide	Nematodes
	Leaf Miner	Insecticide	Parasitic Wasps
	Leafhopper	Insecticide	Parasitic Wasps
	Mealybugs	Insecticide	None
	Scale	Insecticide	None
	Snails/Slugs	Molluscicide	Snail - None Slugs - Nematodes
	Spider Mites	Miticide	Predatory Mites
	Thrips	Insecticide	Predatory Mites
	Whiteflies	Insecticide	Parasitic Wasps
	Nutritional / Environmental	Insufficient Watering	None
Iron Deficiency		None	Apply a fertilizer containing iron
Nitrogen Deficiency		None	Apply a fertilizer containing N
Phosphorus Deficiency		None	Apply a fertilizer containing P
Overwatering		None	Correct / Adjust Watering
Magnesium Deficiency		None	Apply a fertilizer high in Mg
Mechanical		None	None

# FLORICULTURE IDENTIFICATION SCORECARD

Training Reference 3

Name: \_\_\_\_\_ Contestant No: \_\_\_\_\_

School: \_\_\_\_\_ School No: \_\_\_\_\_

## Plant Number

- |           |           |       |
|-----------|-----------|-------|
| 1. _____  | 21. _____ | 41. _ |
| 2. _____  | 22. _____ | 42. _ |
| 3. _____  | 23. _____ | 43. _ |
| 4. _____  | 24. _____ | 44. _ |
| 5. _____  | 25. _____ | 45. _ |
| 6. _____  | 26. _____ | 46. _ |
| 7. _____  | 27. _____ | 47. _ |
| 8. _____  | 28. _____ | 48. _ |
| 9. _____  | 29. _____ | 49. _ |
| 10. _____ | 30. _____ | 50. _ |
| 11. _____ | 31. _____ | 51. _ |
| 12. _____ | 32. _____ | 52. _ |
| 13. _____ | 33. _____ | 53. _ |
| 14. _____ | 34. _____ | 54. _ |
| 15. _____ | 35. _____ | 55. _ |
| 16. _____ | 36. _____ | 56. _ |
| 17. _____ | 37. _____ | 57. _ |
| 18. _____ | 38. _____ | 58. _ |
| 19. _____ | 39. _____ | 59. _ |
| 20. _____ | 40. _____ | 60. _ |

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4	Air Plant	Tillandsia	76	Marigold	Tagetes species cv.
5	Aluminum Plant	Pilea cadierei	77	Million Bells	Calibrachoa hybrid cv.
6	Alyssum	Lobularia maritima	78	Monte Cassino Aster	Aster pringlei
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65	Jade Plant	Crassula argentea	137	Wax Plant	Hoya carnosa
66	Kalanchoe	Kalanchoe x blossfeldiana cv.	138	Waxflower	Chamelaucium uncinatum
67	Ladyslipper Orchid	Paphiopedilum hybrid cv.	139	Wind flower	Anemone
68	Lantana	Lantana camara	140	Zebra Plant	Aphelandra squarrosa cv.
69	Larkspur	Delphinium consolida cv.	141	Zinnia	Zinnia cv.
70	Leatherleaf Fern	Rumohra adiantiformis	142	Zonal Geranium	Pelargonium x hortorum cv.
71	Lemongrass (herb)	Cymbopogon cv.	143	ZZ plant	Zamioculcas zamiifolia
72	Lemon leaf	Gaultheria shallon			

## FLORICULTURE/GREENHOUSE ITEMS

Name: \_\_\_\_\_ Contestant No: \_\_\_\_\_

School: \_\_\_\_\_ School No. \_\_\_\_\_

- |           |                                  |   |  |
|-----------|----------------------------------|---|--|
| 1. _____  | 00. # 3 Ribbon                   | 36. Floral knife                                | 67. Propagation Mat                                |
| 2. _____  | 01. # 9 Ribbon                   | 37. Floral preservative                         | 68. Propagation trays                              |
| 3. _____  | 02. #40 Ribbon                   | 38. Floral stem tape                            | 69. PVC pipe                                       |
| 4. _____  | 03. #100 Ribbon                  | 39. Fogger                                      | 70. PVC pipe cutter                                |
| 5. _____  | 04. 18 Gauge floral wire         | 40. Gas mask                                    | 71. Resin-coated<br>fertilizer                     |
| 6. _____  | 05. 28 Gauge floral wire         | 41. Glass vase                                  | 72. Respirator                                     |
| 7. _____  | 06. 606 Cell Pack                | 42. Glue gun                                    | 73. Ribbons shears                                 |
| 8. _____  | 07. 804 Cell Pack                | 43. Glue sticks                                 | 74. Rice hulls                                     |
| 9. _____  | 08. 806 Cell Pack                | 44. Goggles                                     | 75. Rockwool<br>propagation cubes                  |
| 10. _____ | 09. 1204 Cell Pack               | 45. Granular fertilizer                         | 76. Rose and stem<br>flower stripper               |
| 11. _____ | 10. 1206 Cell Pack               | 46. Greenhouse<br>thermostat                    | 77. Shade fabric                                   |
| 12. _____ | 11. 1801 Cell Pack               | 47. Hanging basket                              | 78. Sharpening stone                               |
| 13. _____ | 12. 1803 Cell Pack               | 48. Hearing protection                          | 79. Sheet moss                                     |
| 14. _____ | 13. Anvil-&-Blade Pruner         | 49. Hook-&-Blade<br>pruners (bypass<br>pruners) | 80. Siphon injector                                |
| 15. _____ | 14. Backflow preventer           | 50. Hose punch                                  | 81. Soil moisture meter                            |
| 16. _____ | 15. Bouquet sleeve               | 51. Hose repair coupling                        | 82. Solenoid valve                                 |
| 17. _____ | 16. Bulb planter                 | 52. Hose-end repair<br>fitting                  | 83. Spanish moss                                   |
| 18. _____ | 17. Cardette                     | 53. Hose-end sprayer                            | 84. Spaghetti tubing<br>(1/4" diameter or<br>less) |
| 19. _____ | 18. Ceramic container            | 54. Hose-end washer                             | 85. Sphagnum moss                                  |
| 20. _____ | 19. Chemical resistant<br>gloves | 55. Impulse sprinkler                           | 86. Spray suit                                     |
| 21. _____ | 20. Chenille stem                | 56. Irrigation tape                             | 87. Square point (flat)<br>shovel                  |
| 22. _____ | 21. Coconut COIR                 | 57. Irrigation timer                            | 88. Styrofoam                                      |
| 23. _____ | 22. Compressed air<br>sprayer    | 58. Mist Nozzle (mist<br>bed)                   | 89. Surestik cling                                 |
| 24. _____ | 23. Corsage box                  | 59. Oscillating<br>sprinkler                    | 90. Tulle  |
| 25. _____ | 24. Corsage pins                 | 60. Peat moss                                   | 91. Vermiculite                                    |
|           | 25. Corsage snips                | 61. Peat pots                                   | 92. Water breaker                                  |
|           | 26. Drip emitter,<br>irrigation  | 62. Pest strips                                 | 93. Water picks                                    |
|           | 27. Dry foam                     | 63. pH testing meter                            | 94. Water soluble<br>fertilizer                    |
|           | 28. Dust mask                    | 64. Polyethylene film                           | 95. Water tubes                                    |
|           | 29. Duster                       | 65. Polyethylene pipe                           | 96. Waterproof<br>container tape                   |
|           | 30. Ellepot propagation<br>cubes | 66. Pot covers                                  | 97. Wire cutter                                    |
|           | 31. Enclosure card               |   | 98. Wooden pick                                    |
|           | 32. Fern greening pins           |   | 99. Wrist corsage<br>holder                        |
|           | 33. Fertilizer injectors         |   |  |
|           | 34. Floral adhesive              |   |  |
|           | 35. Floral foam                  |   |  |

## DISORDER PRACTICUM SCORECARD

Name: \_\_\_\_\_ Contestant No: \_\_\_\_\_

School: \_\_\_\_\_ School No. \_\_\_\_\_

		Member Answer	Possible Points	Member Score
1.	Classification #:		2	
	Identification #:		4	
	Chemical Control #:		2	
	Cultural/ Biological Control #:		2	
2.	Classification #:		2	
	Identification #:		4	
	Chemical Control #:		2	
	Cultural/ Biological Control #:		2	
3.	Classification #:		2	
	Identification #:		4	
	Chemical Control #:		2	
	Cultural/ Biological Control #:		2	
4.	Classification #:		2	
	Identification #:		4	
	Chemical Control #:		2	
	Cultural/ Biological Control #:		2	
5.	Classification #:		2	
	Identification #:		4	
	Chemical Control #:		2	
	Cultural/ Biological Control #:		2	

**CLASSIFICATION:**

- 01. Diseases
- 02. Insects / Pest / Mites
- 03. Nutritional / Environmental

**IDENTIFICATION:**

- 20. Aphids
- 21. Black Leaf Spot
- 22. Botrytis – Grey Mold
- 23. Damping-off
- 24. Fungus Gnats
- 25. Insufficient Watering
- 26. Iron Deficiency
- 27. Leaf Miner
- 28. Leafhopper
- 29. Magnesium Deficiency
- 30. Mealybugs
- 31. Mechanical
- 32. Nitrogen Deficiency
- 33. Overwatering
- 34. Phosphorus Deficiency
- 35. Powdery Mildew
- 36. Root Rot
- 37. Rust
- 38. Scale
- 39. Snails/Slugs
- 40. Spider Mites
- 41. Stem Rot
- 42. Thrips
- 43. whiteflies

**CHEMICAL CONTROL:**

- 1. Fungicide
- 2. Insecticide
- 3. Miticide
- 4. Mulluscicide
- 5. No Treatment Listed

**CULTURAL CONTROL:**

- Apply a fertilizer containing iron
- Apply a fertilizer containing magnesium
- Apply a fertilizer high in nitrogen
- Apply a fertilizer high in phosphorous
- Correct / Adjust Watering
- Ladybird Beetles
- Nematodes
- 8. Parasitic Wasps
- 9. Predatory Mites
- 10. Reduce Relative Humidity
- 11. No Treatment Listed